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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

A Reuben H. Donnelley Publication

In This Issue –

JANUARY • 1960

Dry Testing Pumpers
Operation of Fire Apparatus Torque Converters
Literature of the Fire Service

Architect's drawing of new Chicago Fire Administration and Training Center, one step in modernization of department. Site is reputed to be location where Great Fire of 1871 started. (see story on page 34)

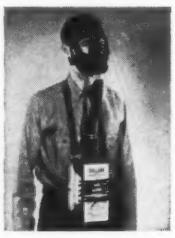
*if your men aren't wearing Bullard helmets... head protection is costing you too much!

MORE FIRES FOR YOUR MONEY!

Expose rugged Bullard HARDBOILED fire helmets to searing flame (high as 2,000° F.), freeze them, soak them in boiling water... these grueling punishments won't soften or weaken a Bullard fire helmet's protective characteristics! This is the only fire hat that exceeds Federal specifications. No Fire Helmet is tougher, yet few are as comfortable to wear. Light and cool on your head... made from non-conductive fiber glass they weigh only 20 ounces. In a choice of permanent non-fading colors, these helmets are equipped with replaceable suspensions that adjust to all standard head sizes. Today, ask to see how Bullard Fire Helmets make your budget go further... help you fight more fires for the money!

Stop First Aid Water Damage

New Bullard Fire Department First Aid Kits are 100% water proof. Every supply is separately sealed in Polyethylene wrappers. Includes the new approved, spray-on, pain killing burn treatment... *First On Burns.*



Economy Gas Masks

Equip your units with gas masks at a 12% saving. Bullard "SMOKE-EATER" gas masks contain exclusive money saving filter for toxic dusts, fumes, mists, fogs, and smoke.

BULLARD
INDUSTRIAL SAFETY EQUIPMENT

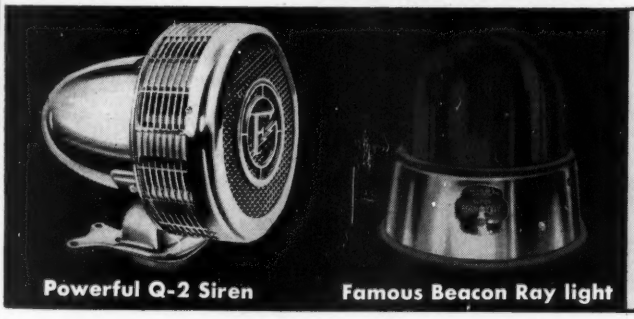
E. D. BULLARD COMPANY SAUSALITO, CALIFORNIA

See your local fire equipment dealer or write for catalog of complete line of fire helmet accessories.

YOU CAN'T RELAX

winter's not half over

If you've survived the holiday rush of fire alarms, you still face bad weather and short days with related conditions. These contribute to higher fire hazard and ***more*** alarms.



Powerful Q-2 Siren

Famous Beacon Ray light

New PA-1 electronic siren illustrated with CP-24 streamlined speaker. Three other speaker styles optional.

Do yourself ***and*** the public a favor, protect them by being sure that all ***your*** vehicles are equipped with FEDERAL Warning Signals—Q-2 Coaster Sirens and Beacon Ray lights. Their powerful blasts and attention-getting revolving light rays strike warnings to eye and ear alike; ***be sure both signals are specified on your new equipment.***

Don't delay—the roughest part of 1960 is still ahead . . . write for Catalog #300 today.

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13602 S. Western Ave., Blue Island, Ill.

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FIRE ENGINEERING

VOL. 113 JANUARY, 1960 NO. 1

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We Receive a "Frankie"

The West Milwaukee Fire Department, in cooperation with the village board and local civic organizations, annually sponsors an active Fire Prevention Week program. This year the chamber of commerce defrayed the cost of casting a statuette of a fireman, to be presented to those who have made an outstanding contribution to fire prevention.

The fire department, through Fire Chief John Pavlik, awarded a "Frankie" and citation to FIRE ENGINEERING, among others for "knowledge, devotion and interest in fire prevention (which) have contributed greatly towards the saving of life and property."

We are very grateful to the West Milwaukee Fire Department for the honor. As we begin this new year, we renew our determination to further the cause of fire safety by continuing to provide the fire service with information on the latest developments in all phases of this important field.

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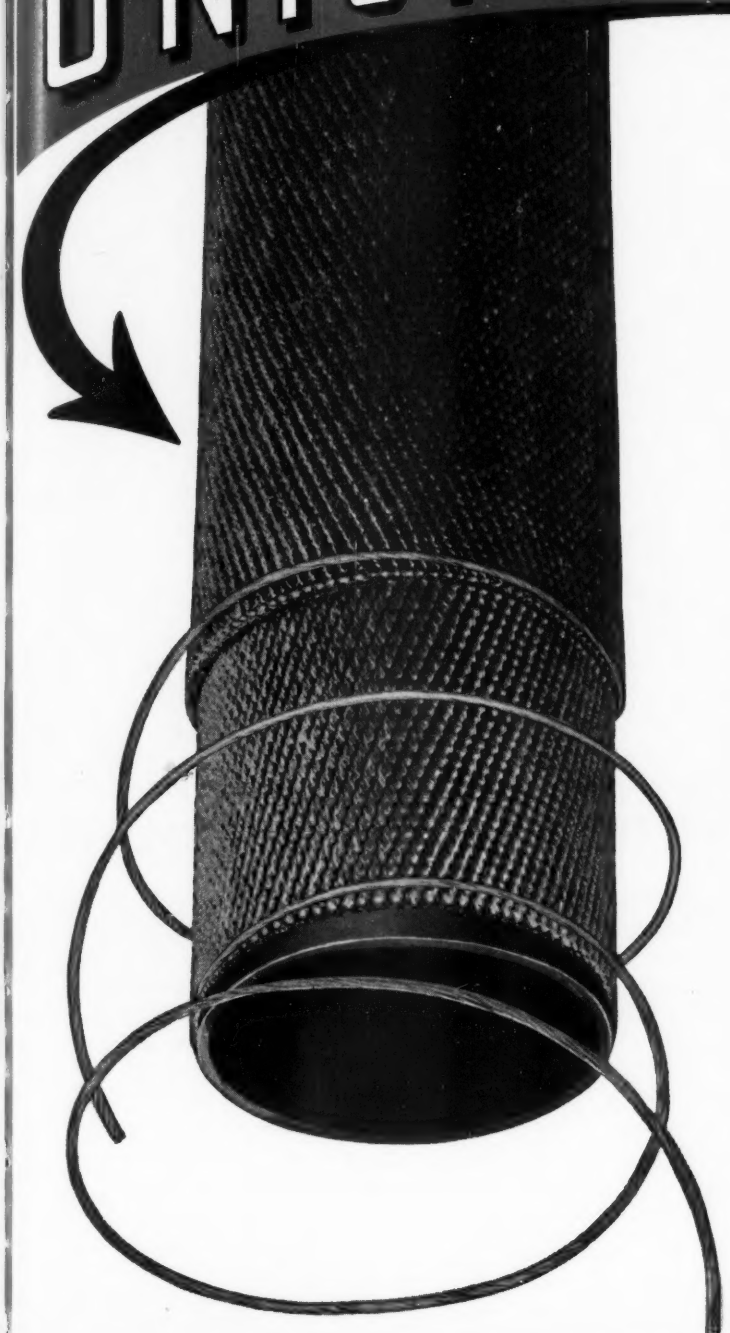
UNISPUN FIRE HOSE



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ZERO WARP

ZERO RISE

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FABRIC FIRE HOSE
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WITH WEATHERMATE PROTECTION AND PRES-R-LOCK COUPLINGS

FABRIC FIRE HOSE COMPANY ★ **SANDY HOOK, CONN.**

Exclusive Manufacturers of Fire Hose Since 1869 ★★★★★

IN CANADA *Pierre Thibault* CANADA, LTD., LTEE., PIERREVILLE, QUEBEC

MOVE-UP FAST WHEN SECONDS COUNT!

"Scotch·shield" Aluminized Fabric protects firemen from searing radiant heat . . . hundreds of degrees of heat that turn back the bravest men wearing conventional clothing! . . . because it reflects more than 90% of radiant heat!

The lightness and flexibility of "Scotch·shield" Aluminized Fabric gives you the mobility to work fast and effectively within the heat barrier! Now you can move-up fast when seconds count to kill a fire at its source or to choke it with chemicals! No more "slow-motion" bulkiness!

Hoods, gloves, coats, full suits and specialized gear made of "Scotch·shield" Aluminized Fabric are fabricated by many experienced manufacturers of protective clothing. "Scotch·shield" Aluminized Fabric is specified and used by our Armed Forces and by many modern city and industrial fire departments. You can use this protection, too!

Send the coupon for name of your nearest supplier and free, informative booklet, "When It Takes More Than Courage!"

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. . . WHERE RESEARCH IS THE KEY TO TOMORROW

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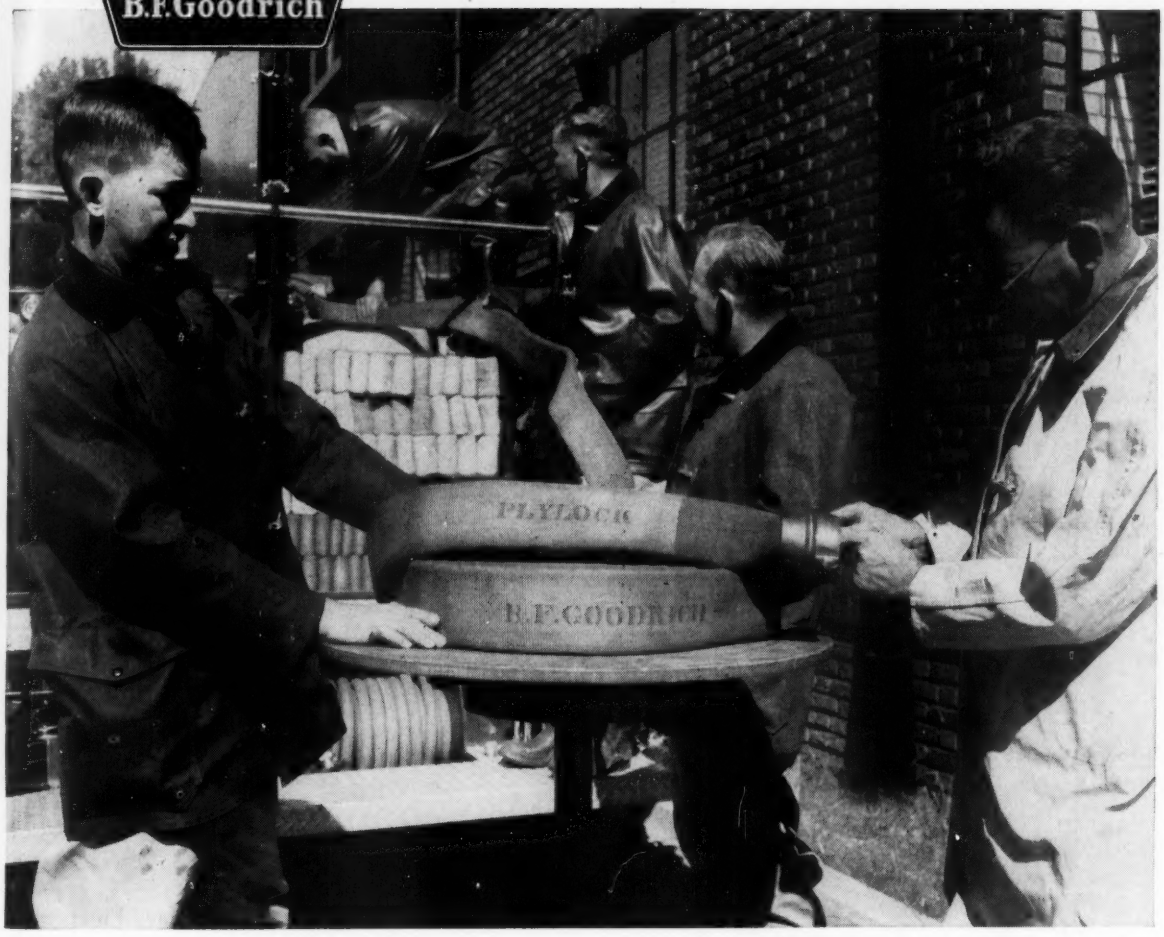
Please send free booklet about "Scotch • shield" Aluminized Fabric, "When It Takes More Than Courage."

Name_____ Title_____

Fire Dept. or Firm_____

Address_____

City_____ Zone____ State_____



This hose fights fires long after ordinary hose gives up

Not one single length of this hose has ever failed at the coupling. It's lighter, more flexible—yet is as strong as heavier, bulkier hose. It's protected against mildew. These quality features of B.F.Goodrich hose may add a few cents per foot to its cost, but they're worth so much more.

For example, Plylock end protection, an extra layer of hardwoven cords extending 12" from the coupling, adds 100% more strength to the coupling area. It prevents the tube from splitting or cracking during the strain of coupling or uncoupling hose to hydrant, greatly increases hose life.

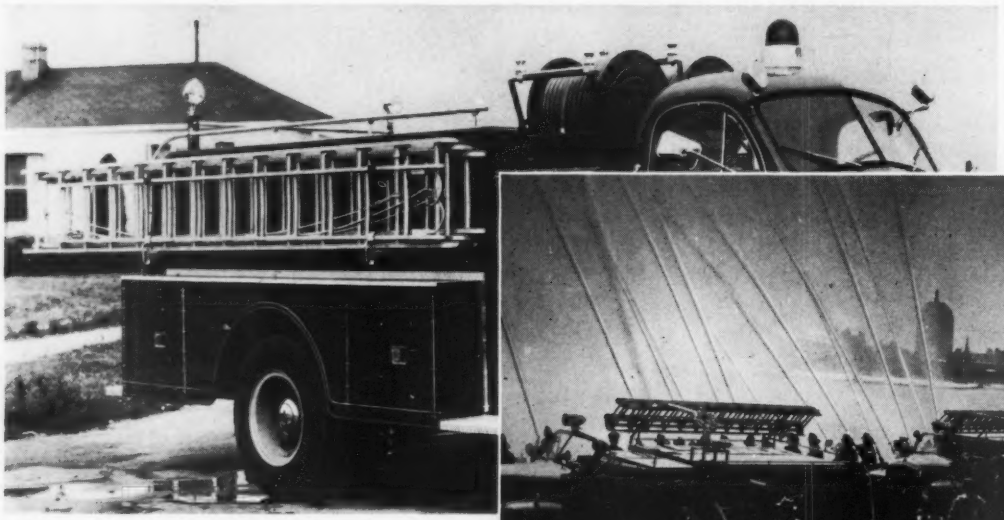
The hose gets its lightness and flexibility from "filler" cords of Dacron fiber which go around the hose and carry the load under pressure. These cords are thinner, and three times stronger than cords used in ordinary hose. Because of this reinforcement, the hose not only lasts longer, but it's easier to handle, and coils tighter so that hundreds of extra feet can be racked on a truck.

Superseal is a special treatment that practically eliminates mildew as a hose killer. This exclusive B.F.Goodrich treatment for hose gives 10 times more resistance to mildew and rotting than ordinary treatment. It also protects against moisture absorption and freezing, and increases the hose's resistance to fire.

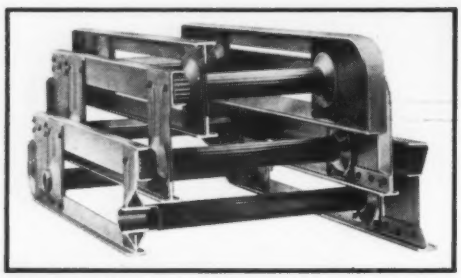
If you're looking for a good buy in hose, get the B.F.Goodrich fire hose with all these quality features. It may cost more to begin with, but will actually cost you less in the long run. Your B.F.Goodrich distributor can tell you more about it. *B.F.Goodrich Industrial Products Company, Dept. M-776, Akron 18, Ohio.*

B.F.Goodrich *fire hose*

These versatile Pumpers are equipped with lightweight Alco-Lite Ground Ladders

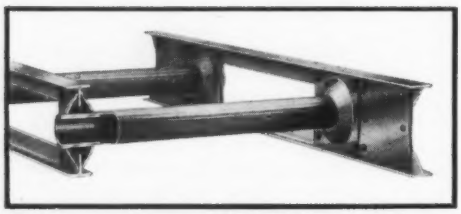


The Pumpers shown are products of Mack Trucks, Inc., Sidney, Ohio



Operate Automatically

Ladder sections extend — lock and unlock simultaneously. Spring loaded locks operate automatically. Channel slides the entire length of the ladder keep sections from becoming disengaged.



Permanent Rung-to-Rail Construction

Exclusive expansion bushing, rung to rail construction prevents rungs from twisting, turning, or breaking off.

They're lighter, easier to handle

The Alco-Lite Aluminum Ladders on the Mack Pumpers above feature open side rail, T-Channel design. All excess, weight adding bulk is eliminated. Only exclusive, Alco-Lite double gusset plate, expansion bushing construction makes this trim, modern design possible. These ladders more than meet any accepted tests for strength and safety.

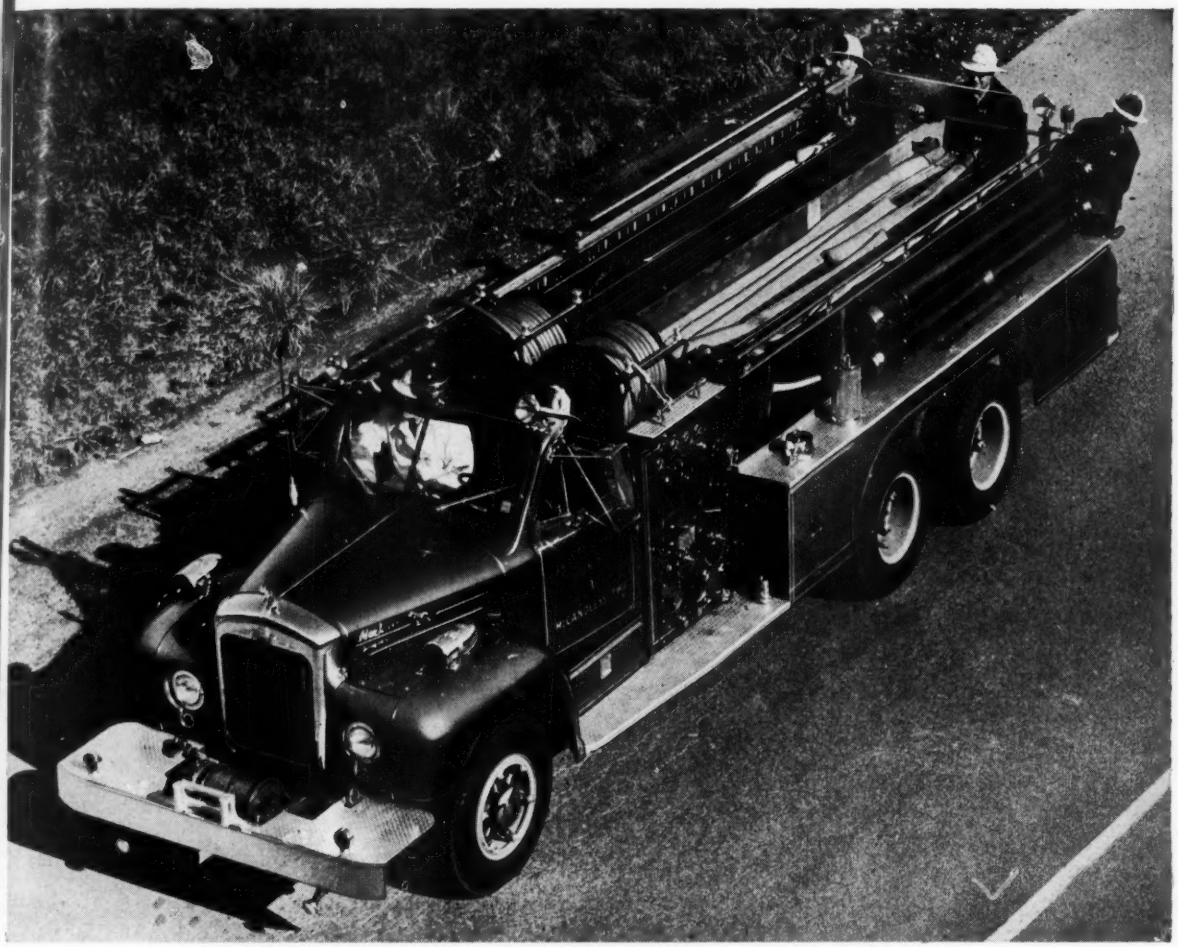
Maintenance is almost negligible with Alco-Lite Aluminum Ladders. They are not affected by water, moisture, fumes or gases. They will not warp, rot, splinter, or burn.

Because they are lightweight and trim, Alco-Lite Aluminum Ladders are easier to handle and easier to lift. They save precious minutes and require less physical effort when used at fires.

When you want easy to handle, safe, and almost maintenance free fire ladders, specify Alco-Lite Aluminum Ladders.

Aluminum Ladder Company ALCO-LITE

W. Darlington St. Ext., Florence, South Carolina



New Mack 750-gpm triple-combination pumper delivered to Peebles District Fire Company, McCandless Township, Pa., features 750-gal. booster tank . . . 250-gpm auxiliary pump . . . 500 ft. of 1" hose . . . 10-ton front-mounted winch . . . front-mounted, cab-controlled spray nozzles . . . aluminum ladders. Vehicle is powered by 276 hp Mack Thermodyne® engine, has exclusive Mack four-wheel Balanced Bogie that delivers power equally to wheels having traction for pulling power in rough going, and is equipped with air brakes.

Mack fire apparatus for modern fire protection

Part of the constant improvement in fire-fighting techniques is the increasing reliance on apparatus that can stand up to modern demands. This means that more and more progressive paid and volunteer departments rely on Macks for outstanding dependability.

The reason for Mack leadership is obvious. Mack builds more of the vital components of its fire apparatus than any other maker. Thus Mack can best meet your exact fire-fighting needs.

Engines, frames, transmissions, front and rear axles, including the tandem-axle Mack Balanced Bogie with Power Divider interaxle differential for automatic transmission of power to the axle with the most traction—all these are built in Mack's own plants for Mack fire apparatus.

Next time you consider apparatus, compare Mack design and construction with all others. You'll know you're getting the best when you specify Mack. Mack Fire Apparatus, Allentown, Pennsylvania. In Canada: Mack Trucks of Canada, Ltd., Toronto, Ontario.

7392

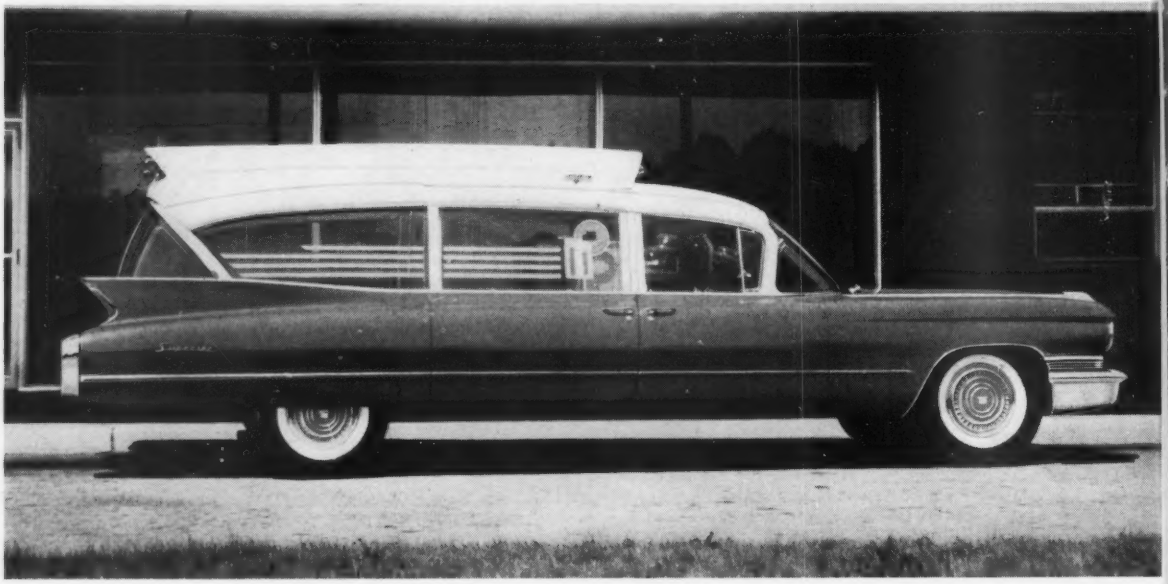
MACK

FIRST NAME FOR

FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . AERIALS 65′ to 144′. . . COMBINATION LADDER TRUCKS

The last word in style and efficiency... first in performance



Above: Superior Royale Rescuer, 48" Headroom, Cadillac chassis.

Below: Superior "Suburban" Ambulance, 46" Headroom, on Pontiac chassis.

SUPERIOR Ambulances and Rescue Cars

Only Superior offers a complete emergency fleet: three headroom heights on the famous Cadillac chassis; two headroom heights on the special heavy-duty Pontiac chassis with the clean, crisp lines of popular 1960 Pontiac styling.

With any Superior emergency unit, you get more headroom, more work space, more room for auxiliary equipment and supplies, plus Superior's famed welded steel body construction—features that contribute to the responsive, efficient, dependable performance that has made the name Superior foremost among America's ambulance users.

SUPERIOR COACH CORPORATION • LIMA, OHIO

SUPERIOR'S COMPLETE EMERGENCY FLEET. *On Cadillac chassis:* 42" Headroom Ambulance; 48" Headroom Rescuer; 54" Headroom Super Rescuer. *On Pontiac chassis:* 40½" Headroom Ambulance; 46" Headroom "Suburban" Ambulance.

when you buy "PRICE" you get your feet wet!

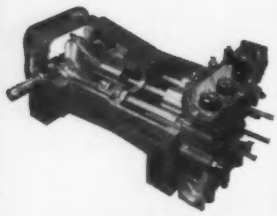
It's easy to *look* economical when you buy cheap fire hose . . . but how do you look when hose splits at a fire . . . when it won't reach 'cause you can't fold enough onto the pumper . . . when you have to re-order within a year . . . when *you walk into the council room with wet feet?*

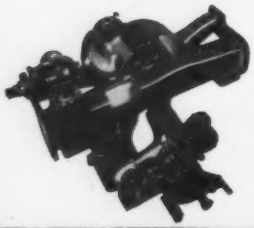
FIRE HOSE IS LIKE AN **ICEBERG** MUCH OF ITS VALUE IS **BELOW** THE SURFACE

Bi-Lateral®
FIRE HOSE COMPANY

20 NORTH WACKER DRIVE • CHICAGO 6, ILLINOIS

greater versatility





1 *HPV — BOTH HIGH-PRESSURE FOG AND VOLUME PUMPS — Operated separately or simultaneously, these two John Bean pumps are the heart of the HPV's dual fire-fighting systems. One is the original John Bean high-pressure pump, famous the world over for its rugged construction and dependable performance. For true high-pressure fog fire-fighting, the pump operates at 850 psi delivering 60 GPM through two hose lines. The other is John Bean's Class A centrifugal volume pump (N.B.F.U. tested), available in capacities of 500, 600, or 750 GPM.

2 IN-MOTION PUMPING — John Bean's in-motion pumping makes the HPV doubly effective in fighting brush, grass, and forest fires. High-pressure pump has its own power take-off coupled to the engine so that fog lines can be operated while truck is in motion. Control for engaging pump is located conveniently inside cab.

instant action always

3 DUAL BATTERY SYST (OPTIONAL EQUIPMENT)

Assure instant starting with dual battery system. Truck b tery furnished on all HPV F fighters, extra battery is tional.

4 PUMP PRIMING — time is lost in getting John Bean volume pump action. Gear shifting fr "road" to "primer" has b eliminated. Primer control tomatically opens and clos pump valve. The primi pump is of the positive d placement type and is u for *priming only*.

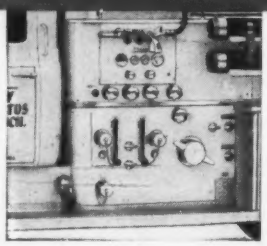
21 REASONS WHY

Jo

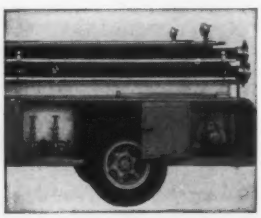
neet

operating convenience

9 CENTRALIZED CONTROL PANEL — All gauges, valves, and controls are centralized on a single control panel for convenient operation. Panel is illuminated for quick, easy reading at night.



10 POWER REWIND HOSE REELS (OPTIONAL EQUIPMENT) — For faster, easier hose pickups, both high pressure hose reels may be equipped with optional powered rewind mechanisms. Hose reels with hand cranks are standard equipment.



11 AMPLE STORAGE SPACE — Four large-size, fully lighted compartments are built in to provide a total of more than 45 cu. ft. of storage space. One is tailored for slide-mounted generator equipment; another for portable water pump. Additional compartments offer ample storage for oxygen masks, nozzles, adapters, first aid, and other accessories. A small tool compartment is located conveniently above the rear platform.

12 INSIDE PUMP SHIFT — You save critical time and steps when arriving at a fire because John Bean's pump shift is located conveniently inside the cab.

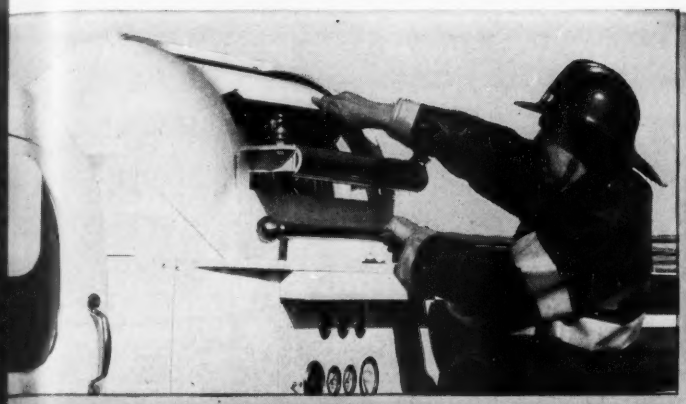
personnel safety

18 FULL-LENGTH GRAB RAILS — Chrome rails at convenient height extend full length of hose body and across rear, permitting firemen to don equipment safely while riding.

19 NON-SKID RUNNING BOARDS — Full-length side running boards are manufactured from approved non-skid treadplate, are securely mounted to the chassis frame.

20 EXTRA-WIDE REAR PLATFORM — Safety and comfort for riding firemen is assured by John Bean's extra-wide rear platform, constructed of approved non-skid treadplate.

21 FACTORY TRAINING by experienced fire fighters at John Bean is a part of the regular service that goes with every John Bean truck. Complete course teaches your personnel how equipment is best used and properly maintained.



WINTERIZED REEL COMPARTMENTS

To assure dependability in freezing weather, engine heat is channelled into enclosed reel compartments where it is retained by sliding metal covers. Engine heat is also used to warm pumps, valves, gauges, and controls.

rugged construction

6 BALL-TYPE DISCHARGE GATES — Rugged, quick-acting ball-type gates will not leak under pressure or suction, turn easily at all operating pressures.

7 HEAVY, RUST-PROOFED TANK — 500-gallon, 10-gauge steel water tank is fully treated against rust to assure long life. Large, removable tank covers permit easy cleaning and inspection.

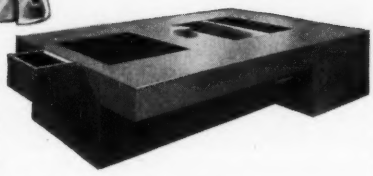
8 HIGH-STRENGTH PANELLING — All body panelling and compartments are made from special 12-gauge, stretcher level, body steel, completely reinforced with U-formed top for added strength and rigidity.

John BEAN HPV* FIREFIGHTERS

meet your fire-fighting needs like no other equipment can!

greater capacity

13 THREE HIGH-PRESSURE GUNS — Furnished with each HPV Firefighter are three patented John Bean high-pressure fire guns (third gun is spare). This famous gun features instant on-off trigger action with face-protecting spray for close fire approach. Rotating barrel permits quick selection of complete range of fog patterns for all types of fire.

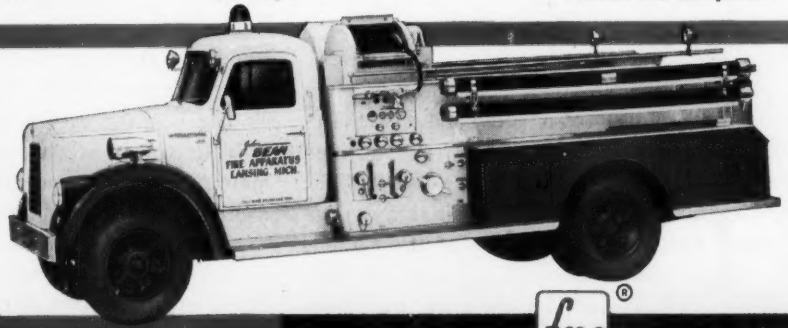


14 500-GALLON TANK — Big 500-gallon tank supplies water for John Bean high-pressure fog lines. Fire-extinguishing value of water discharged as high-pressure fog is increased by a ten-to-one ratio — makes the 500 gallons go ten times further. Six-compartment baffling prevents undesirable water surge.

15 SPACIOUS HOSE BED — Smooth, level hose bed is properly ventilated . . . provides ample space for 1200 ft. of 2½-inch and 400 ft. of 1½-inch double-jacketed fire hose.

16 400 FT. OF HIGH-PRESSURE HOSE — Standard equipment with each HPV Firefighter includes two 200-foot reels of special high-pressure (5000 psi discharge) hose.

17 20 FT. OF SUCTION HOSE — Other standard equipment includes two 10-foot lengths of 4½ inch hard suction hose, complete with hydrant adapters and suction screens. Lengths of 2½ inch hard suction hose are optional.



For complete details on John Bean Firefighters, write today for catalog.

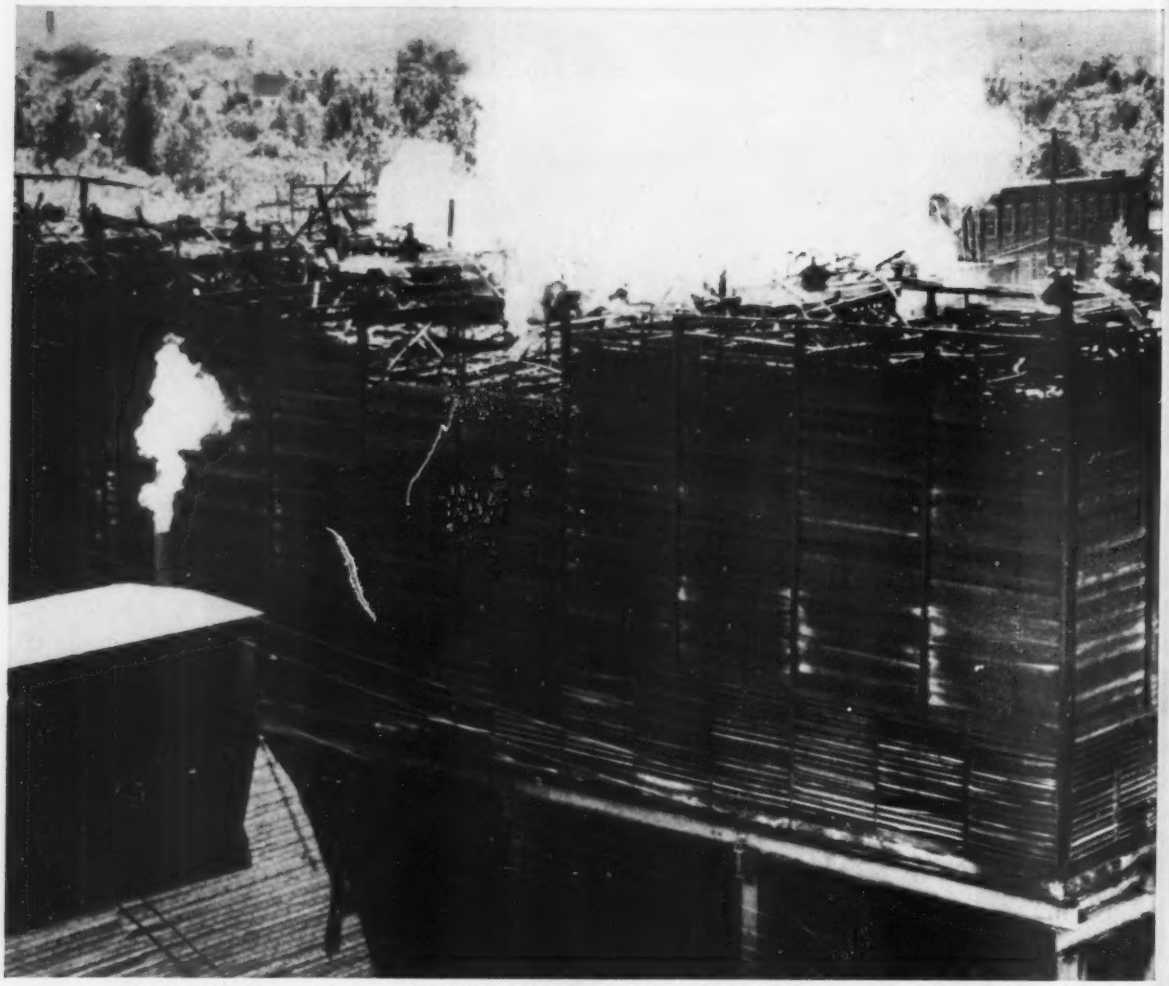
JOHN BEAN

fmc

Dept. 126 Lansing 4, Michigan

P.O. Box 145 San Jose 3, California

A Division of Food Machinery and Chemical Corp



Fire caused by friction spark destroyed top 6 feet of this cooling tower, severely damaging motors, shafts and gear boxes.

Protect water cooling towers from crippling fire with a Grinnell System!

Why are cooling towers so vulnerable to fire? Because they are largely made of wood. It is true that when the tower is operating, most of the wood is wet. But roof and sides can become excessively dry through exposure to the sun. Also, there is a portion of the tower above the cooling water distribution system that is never wet. Common causes of fire include defective wiring, overheated bearings, and lightning.

Moreover, fire may strike when the tower not only is shut down, *but even while it is in use*. One insurance company has stated that nearly half its tower losses occurred when they were in operation!

The best protection against an unexpected blaze in water towers is a Grinnell Water Spray or Automatic Sprinkler System, engineered by Grinnell to protect against fire, no matter how it may start. Grinnell engineers are well qualified . . . backed by a company with 89 years experience in the fire protection field. For complete information, write Grinnell Company, 260 West Exchange Street, Providence 1, R. I.

GRINNELL

Fire Protection Systems Since 1870

New uses for sodium, magnesium, powdered aluminum and the commercial development of titanium, zirconium dramatized the need for a new extinguishing agent. Ansul people met the challenge with MET-L-X, first and most effective extinguisher for vicious combustible metal fires. This same determination to create new, better answers to fire protection problems can be put to work for you. Call on us. ANSUL CHEMICAL COMPANY, MARINETTE, WISCONSIN

new products, new ideas for better fire protection

ANSUL

FIRE FIGHTING EQUIPMENT
REFRIGERATION PRODUCTS
INDUSTRIAL CHEMICALS

MIDWESTERN

Safety Clothing for Firemen

The Original STRIPED SAFETY COAT

The striped safety coat for firemen is an Original Midwestern development — first in the field — a leader ever since its introduction 19 years ago.

The BRILLIANT YELLOW stripes are actually rubberized into the black rubber . . . an exclusive feature that defies comparison with substitute or imitation models where the stripes are glued, sewed or painted on the material.

When working under hazardous conditions in smoke, fog, dust or darkness, firemen deserve the superior quality, design, comfort and safety features offered by the Original Midwestern Safety Coat.

Many Fire Chiefs who insist on the best of protection for the men of their department specify MIDWESTERN SAFETY garments to the last man because every outstanding Midwestern feature is original. All fabrics are extremely soft and flexible and have the qualities to stay that way at varying temperatures. You can always distinguish a MIDWESTERN SAFETY garment by the soft feeling of the material in both rubber and fabric type garments.

We have always designed and constructed our garments with the one thought . . . that every fireman deserves complete protection in his hazardous work of protecting life and property against the ravages of fire.

COMBINATION BUNKER SUITS

The many weights of both rubber coated and cloth type materials offered in our MIDWESTERN Quick-Hitch suit makes this combination ideal for all sections of the domestic market and export. Also, both coat and bunker pants may be purchased with or without detachable wool linings.

MIDWESTERN SAFETY MANUFACTURING CO.
Mackinaw, Illinois

- ☐ Have Midwestern representative call with complete information and prices.
- ☐ Send Free Catalog and fabric samples.

Name_____

Address_____

City_____ State_____

NONE GENUINE WITHOUT THIS TRADE

MIDWESTERN SAFETY MFG. CO., Mackinaw, Ill.
Located in the heart of the Greater Peoria Manufacturing Area
Manufacturers of the Famous MACKINAW Safety Coat

MSA®
SAFETY EQUIPMENT HEADQUARTERS

MSA backs up its label with:
selection—quality—research—experience

Increase firefighters' safety and comfort:
Convert breathing equipment to new M-S-A® CLEARVUE* Facepiece

M-S-A® "All-Service"® Gas Masks with new CLEARVUE* Facepiece protect against combinations of carbon monoxide and all other poisonous industrial gases, vapors, smokes.

Breathing equipment converts easily and inexpensively to the single lens CLEARVUE. It's the *only* facepiece that offers all these features:

- Lens is easily replaceable in the field without special tools.
- Lens fastening device creates uniform tension.
- Prevents loosening, pop-out, and leakage.
- Prescription glasses may be easily mounted and adjusted inside the facepiece.
- Chin stop eliminates improper positioning and wearer discomfort.
- Exhalation valve is well guarded from possible damage, yet readily replaceable.
- Molded lip inside the facepiece provides a comfortable leak-tight fit on wide variety of faces.
- Improved speaking diaphragm permits crisp, clear communication.
- Facepiece design prevents lens from fogging.

Want a demonstration? Call your MSA Representative. Or, write us for new bulletin. Mine Safety Appliances Company, Pittsburgh 8, Pennsylvania. In Canada: Mine Safety Appliances Company of Canada Ltd., Toronto 4, Ontario.

*Trademark

Be sure to take it with you...
YOU'LL NEED IT!

The instant you arrive, you're fighting for *control* . . . and those *first few minutes are critical!* Your Motorola "Handie-Talkie" portable radios will help you get reports from every trouble spot . . . and relay instructions in *seconds.* You are in constant contact with all members of your fire fighting team.

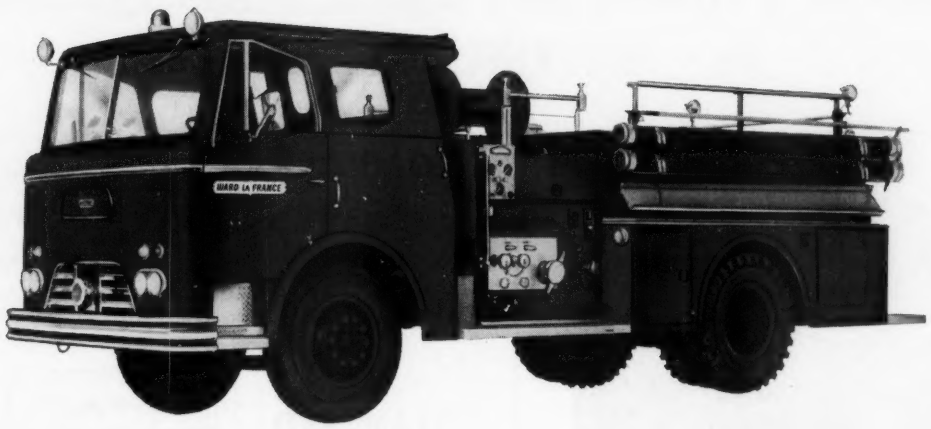
For faster fire fighting, make sure that you have *enough* "Handie-Talkie" portables.

Transistors, plated chassis and other improvements increase reliability . . . make this the smallest, lightest portable 2-way radio available. You also benefit from the long battery life and obsolescence-free design. And only Motorola can offer you a portable radio with a full 8 watts output. One of the 43 "Handie-Talkie" radios is ideal for your needs. Write for complete literature today.

MOTOROLA Handie-Talkie®
RADIOPHONE

Motorola Communications & Electronics, Inc., 4501 Augusta Blvd., Chicago 51, Illinois, A Subsidiary of Motorola, Inc.

NEW YORK CITY ADDS 16 MORE



Through the years, New York City has bought 243 Ward LaFrance Pumpers. To this imposing fleet—16 of the new fire-fighting units will be added. Other cities and communities across the nation have recognized the basic value built into Ward LaFrance apparatus—engineered for the ultimate in safety, performance, and maneuverability.

- NEW! Seven-man Cab with exclusive safety seat for five men
- Removable Cab Roof
- Easiest of all to handle in traffic
- Maneuvers in streets too narrow for others
- Shortest wheel turning radius—24 feet
- Shortest front overhang—56 inches
- Shortest wheelbase—150 inches

Partial list of cities and communities who have placed orders for the new "Firebrand" Pumper

New York City
Houston, Texas
Glenburnie, Maryland
Jackson, Mississippi
Busti, New York
Dallas, Texas
Barrington, Rhode Island
Texarkana, Texas
Maplewood, New York
Atomic Energy Commission

Let the man from Ward LaFrance give you complete details.

WARD LA FRANCE

WARD LA FRANCE TRUCK CORPORATION
FACTORY AND SALES OFFICE: GRAND CENTRAL AVENUE, ELMIRA, NEW YORK • EXECUTIVE OFFICE: 250 PARK AVENUE, NEW YORK 17, NEW YORK

Go MODERN... With "RED-FLEX"

(U.S. Pat. No. 2392967)

For Greater Efficiency... Lower Costs...in Fire Hose Handling and Maintenance

STRONG · LIGHTWEIGHT · CHEMICAL, OIL and GREASE RESISTANT

Stays Dry ... **No Hose Towers, Mechanical Dryers, Humidity Machines or Excessive Spares Required.** *Mildew-Resistant*

NEOPRENE COVERED

COMPARE the weight and coil compactness of "Red-Flex" with heavier, bulkier old-fashioned hose. No wonder it's being specified by more and more Fire Departments, everywhere!

STANDARD SIZES 400 LB. TEST

Hose Size	Wgt., 50', Uncoupl'd	50' Coil Diameter
1½"	20 lbs.	19"
2"	29½ lbs.	21"
2½"	37 lbs.	21"

Goodall Rubber Company Date_____
448 Whitehead Rd., Trenton 4, N. J.
Gentlemen:
☐ Send complete information on "RED-FLEX" Fire Hose
☐ Have representative call with details and prices.
Company_____
Address_____
City_____Zone____State_____
Attention of_____

Standard of Quality—Since 1870

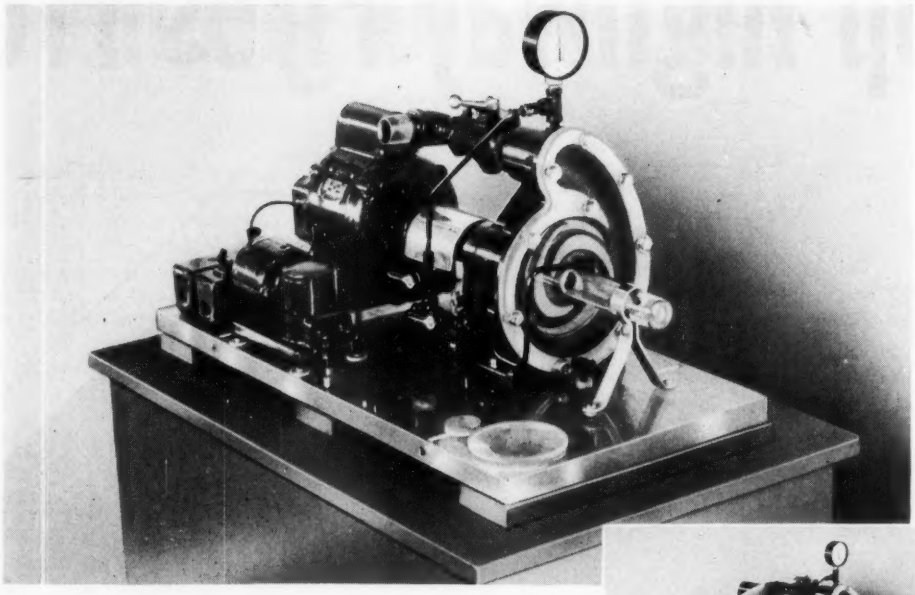
HOSE · BELTING · FOOTWEAR · CLOTHING AND OTHER INDUSTRIAL RUBBER PRODUCTS

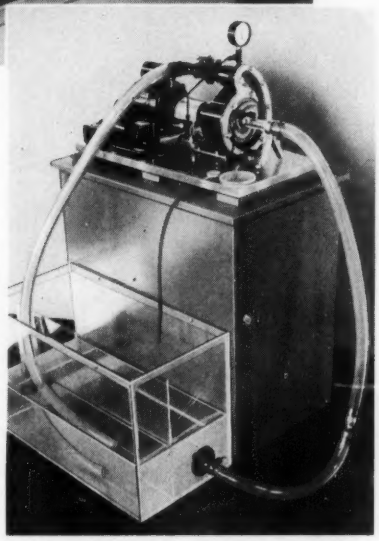
GOODALL *Rubber Company*

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

BRANCHES AND DISTRIBUTORS THROUGHOUT THE UNITED STATES.
IN CANADA: GOODALL RUBBER CO. OF CANADA LTD., TORONTO.

Teach the FACTS of PUMP OPERATION *with a* HALE *"Priming Trainer"!*





At top: "Priming Trainer" Unit Alone. Directly Above: "Priming Trainer" plus transparent tubes and tank.

The Hale visual "Priming Trainer," pictured above, shows every step of the priming cycle right before your eyes. It shows exactly what goes on inside a pump—enables an operator to learn, in a few short minutes, lessons that often take years of experience to grasp.

Hale Engineers planned and developed the original "Priming Trainer" to help in designing better and more efficient pumps. From the first day of use, however, it became obvious that the "Trainer" was *also invaluable for instructing pump operators.*

A deluxe model was built for the Grand Rapids Convention, where it enabled hundreds of Fire Chiefs to see *for the first time:*

1. Every step of a priming operation.
2. What causes cavitation and how to cure it.
3. How and why air leaks cause loss of prime.
4. What happens when any part of a suction hose is above the pump suction.
5. What happens when a "whirlpool" is formed.

Because of the country-wide interest, HALE now offers this visual "Priming Trainer" as a service to the whole Fire Fighting Industry.

For prices and complete details on how to obtain a "Priming Trainer" write us today, or use the coupon at right.

HALE FIRE PUMP COMPANY
Conshohocken, Pa.

To: Hale Fire Pump Company
Conshohocken, Pa.

Please send me complete details on the HALE Visual "Priming Trainer."

Name_____ **Title**_____

Fire Company_____

Street_____

City_____ **State**_____

Protect your community!...

Stop Highway Fires From Sp

With
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Dis

m Spreading Disaster!

With the steady increase of highway traffic comes the increasing risk of fires resulting from crashes and collisions.

These fires, always frequent, are often fatal — killing or injuring people at considerable distance. And they threaten your community with death and damage on every local highway, built or building.

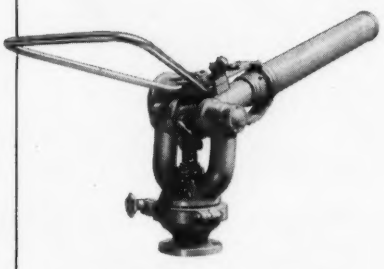
The only way you can prevent highway fires from becoming major disasters is to put them out as quickly as possible. Rockwood fire fighting products bring you that positive protection.

- **Using Rockwood nozzles or turrets, on fire trucks or on the ground, you can hit fires harder.**
- **Using Rockwood FOAM liquid, single or double strength, you can throw a complete, quick smothering blanket over fires in flammable liquids or other combustibles.**

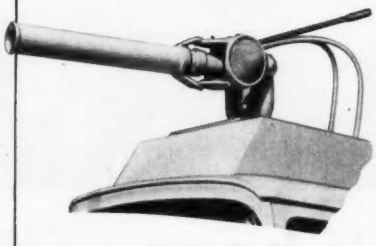
Rockwood nozzles and turrets are designed to fight fires four ways: with solid water stream, solid FOAM stream, FogFOAM and WaterFOG. Rockwood turrets, the most complete specialty line on the market, give fire fighters an extra edge of efficiency.

For over half a century in municipalities throughout the country, Rockwood's highly advanced fire-fighting aids have been proving their ability to save lives and property. Make sure your own department has these most dependable tools to work with . . . Mail the coupon for details on the complete Rockwood line.

Foam Eductor. Introduces FOAM liquid into hose line for use with Rockwood FFF nozzles.



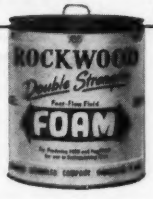
Direct Manual Control Turret. Provides "out-in-the-open" control from cab roof.



Remote Manual Control Turret. Easily handled from driver's seat for fast action.

SG-60 Nozzle With FFF Extension. Discharges straight water stream or WaterFOG, solid FOAM stream or FogFOAM.

Rockwood Double Strength FOAM Liquid. Mixing 3 parts with 97 parts water forms a blanket with proved ability to extinguish spill fires in flammable liquids with maximum speed and safety.



ROCKWOOD SPRINKLER COMPANY

Engineers Water . . .
to cut fire losses

A Division of The Gamewell Company
Distributors in all principal cities.

ROCKWOOD SPRINKLER COMPANY
A Division of The Gamewell Company
447 Harlow Street, Worcester 5, Mass.

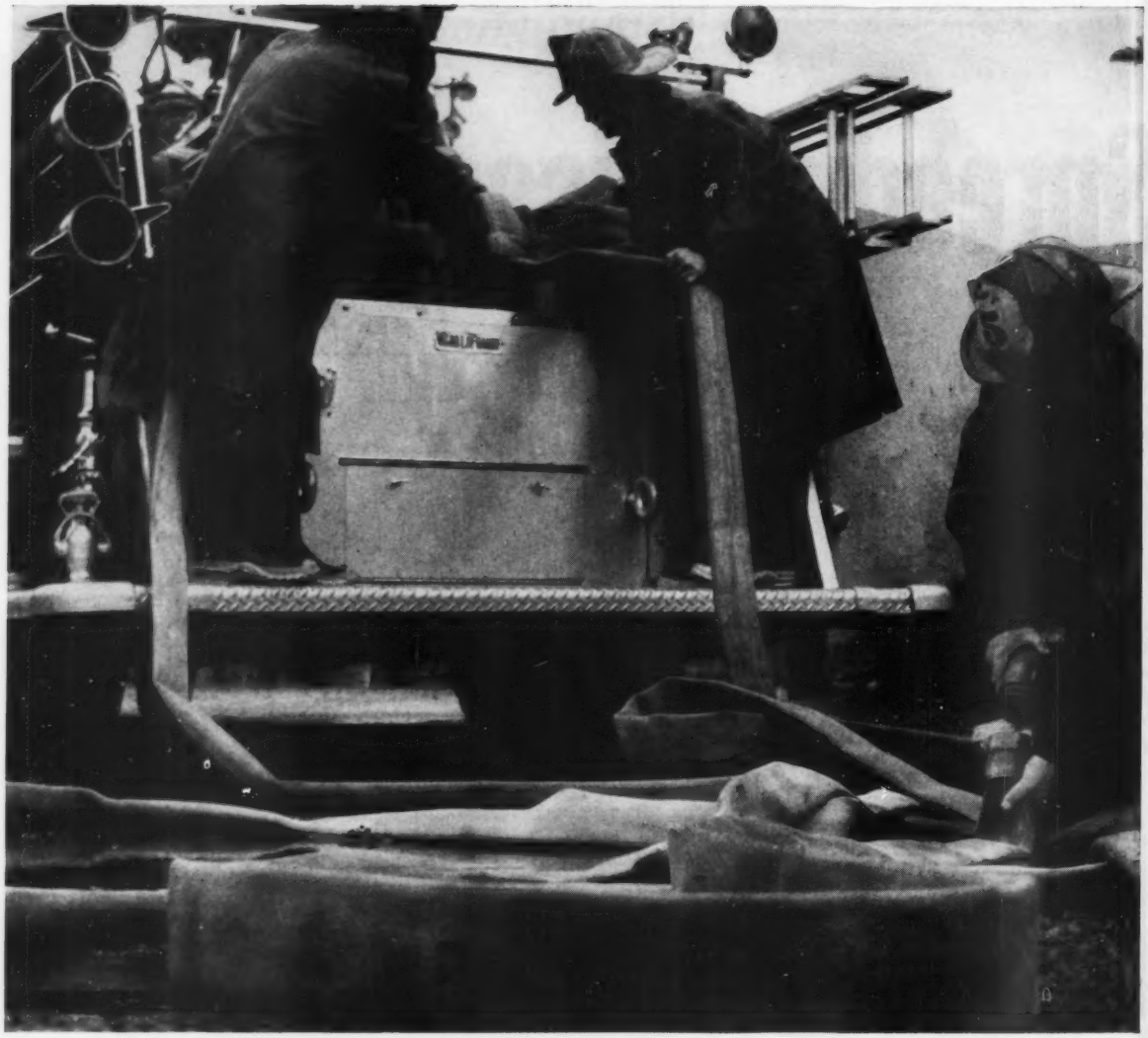
Please send me information on Rockwood fire-fighting products and systems.

Name.....

Title.....

Company.....

City.....*Zone*....*State*.....



Now...repack hose without drying!

New hose jacketed entirely with DACRON® is not damaged by mildew

polyester fiber

Here's revolutionary news for firemen—hose you can repack *wet* without danger of damage from rot or mildew! The reason—new hose jackets made entirely of Du Pont "Dacron"* polyester fiber. Just drain, recouple, reload—that's all there is to it.

Tests prove new hose of "Dacron" is not weakened or damaged by mildew . . . eliminates the need to dry or change hose after each run . . . lets you stand ready to answer calls without delay.

And at a fire, where seconds count, lightweight hose of "Dacron" handles easier, quicker . . . saves you precious time. Light but tough, hose jacketed 100% with "Dacron" resists damage from abrasion and wears much better than cotton hose, has improved resistance to chemicals and oils, gives years of more dependable service.

When you buy hose, be sure it's the best—hose jacketed with all "Dacron". See your supplier . . . or write for sources and interesting folder on "The Hose That Needs No Drying." E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Dept., Room 31E Centre Road Building, Wilmington, Delaware.

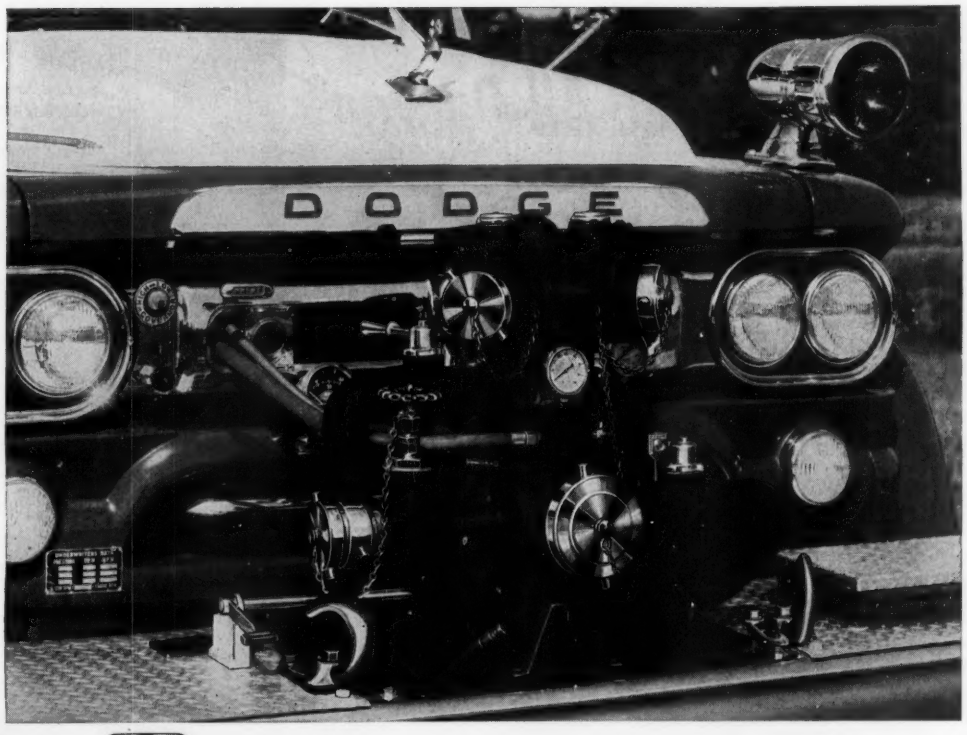
*"*Dacron*" *is Du Pont's registered trademark for its polyester fiber*

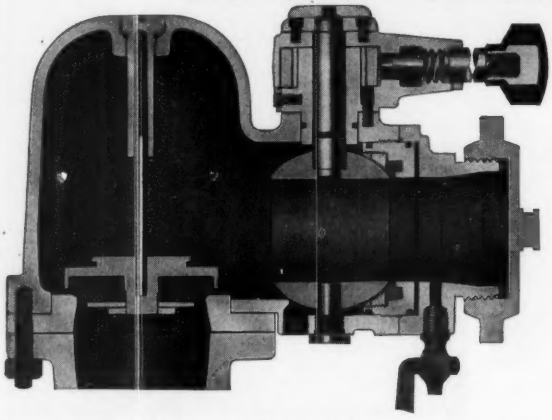
Enjoy THE DU PONT SHOW WITH JUNE ALLYSON, Monday nights, CBS-TV

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*





BARTON-AMERICAN UA-50 Front Mounted Pumps

now offered with

BALL-TYPE LOCKING VALVES

Time-Proven Check Valve Retained

Barton-American ball-type locking valves move into position for any capacity or volume you need — lock in that position with a quarter turn of the handle.

The UA-50 gives you all the advantages of front mounted location: You can fight fires *on the move* with two or more hose lines. With drive wheels on solid ground you can "nose" down to pond or stream to draft water inaccessible to midship pumpers. Front pumps weigh less, use no body space . . . you can carry more water and equipment.

Precision built of best materials — yet *costs less* to buy and install because it's simpler. Investigate the Barton-American Type UA now!

You get these advantages in the UA-50 Ball-type Locking Valve:

1. **Smooth-as-silk operation.**
2. **Regulates volume as you want it.**
3. **Locks positively in any position.**
4. **A quarter-turn of the handle locks it.**
5. **Check valve eliminates need to close hose lines to prime pump.**
6. **Rugged, heavy-duty construction.**
7. **Modern, smooth appearance.**

You also get UA Pump features such as: *Exclusive,* positive interlocking pump clutch that can't slip at a fire; both volume and high pressure to 400 pounds for effective fog streams; fast, reliable, engine vacuum primer; effective, frost-proof construction; plus many other UA advantages.

WRITE TODAY FOR BULLETIN 8330-C

★ AMERICAN ★
FIRE PUMP COMPANY

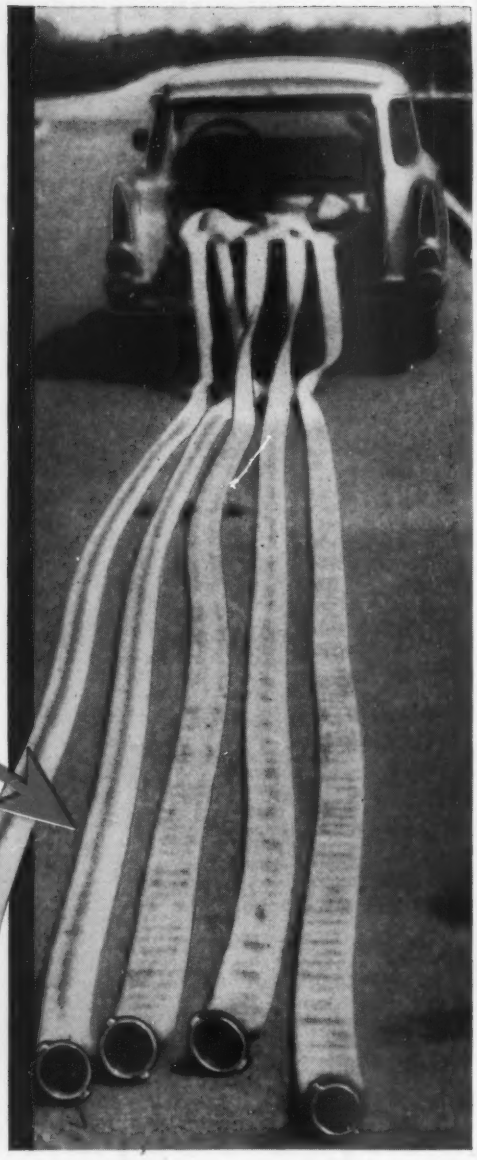
P. O. BOX 219-A BATTLE CREEK, MICHIGAN

New, Bonded All-Dacron*

Ambassador

Ranks best in tortuous abrasion test!

50-foot lengths of hose were dragged on asphalt pavement at speed of 5 miles per hour. Test included 5 types of 2½" hose: 1. Fyr-Fyter 100% Dacron, Tuff-Weave industrial, single jacket; 2. Dacron/Cotton, double jacket; 3. Cotton, double jacket; 4. 100% Dacron, double jacket (unbonded); 5. Fyr-Fyter Ambassador, 100% Dacron, BONDED *double jacket.*



Inside jacket was exposed in hose No. 2 and No. 3 at 3 miles; in hose No. 4 at 6 miles. Test was stopped after 10 miles. All hose except Nos. 1 and 5 appeared to have exceeded their maximum service life. Burst tests further proved Nos. 2, 3 and 4 unserviceable. Hose No. 1 and No. 5 showed no appreciable loss in burst strength!

This tortuous test proves you can expect more durability and longer service life from Fyr-Fyter's new Ambassador Hose. Its rugged resistance to dragging and scuffing is due to an entirely new way of fabrication. Both inner and outer jackets are 100% Dacron which makes them practically immune to wear. The two jackets are also permanently rubber bonded. This means they can't slip or rub to cause any concealed wear. The bonding also gives added falling ember protection. Bonded, 100% Dacron hose is an exclusive product of Fyr-Fyter!

NO DRYING REQUIRED

The extremely low absorbency of all-Dacron jackets eliminates drying operations, and also the need for stand-by hose. Rack it right after use with no fear of mildew.

Other outstanding Ambassador features include lighter weight for easier handling, amazing strength without bulk, flexibility without kinking, compactness and resistance to chemicals. Write today for complete details and prices. **DuPont trademark for its polyester fiber.*

THE FYR-FYTER COMPANY

Branches, representatives and distributors in all principal cities

Atlantic Coast Regional Office:
P.O. Box 750, Newark 1, New Jersey

Central States Regional Office:
221 Crane Street, Dayton 1, Ohio

Pacific Coast Regional Office:
132 Hawthorne, San Francisco 7, Cal.

Fyr-Fyter

to gain the seconds that save lives...

NEW

E & J LYTPORT II

RESUSCITATOR · INHALATOR · ASPIRATOR

Speed saves lives! Rescue workers know that the sooner disaster victims are reached, the better the chances are of saving their lives. The new E & J Lytport II—the result of over thirty years' experience in making emergency equipment—is the ideal unit for dependable, fast-action resuscitation, inhalation and aspiration.

- ***EASY TO CARRY*** . . . only 28½ pounds. Rounded corners, over-size handles, perfect balance.
- ***COMPACT*** . . . only 9½" wide, 10" high, 24" long. Fits easily into car, truck or ambulance.
- ***DEPENDABLE*** . . . pre-set pressures and simple control provide proper aid under any conditions.
- ***NEAT APPEARANCE*** . . . green Fiberglas case is impervious to water, oil, grease and chemical sprays—easy to keep clean.
- ***VERSATILE*** . . . and easy to use. No special skill required. With added hose, aid can be brought to victims at any distance from the unit.

Ask your fire equipment dealer to demonstrate the new E & J Lytport II soon.

E & J . . . FIRST NAME IN RESUSCITATORS

OHIO *Ohio Chemical*

OHIO CHEMICAL & SURGICAL EQUIPMENT CO.
(A Division of Air Reduction Company, Inc.)
Madison 10, Wisconsin

Ohio Chemical Pacific Company, Berkeley 10, Calif. • Ohio Chemical Canada Limited, Toronto 2, Ontario • Airco Company International, New York 17, N. Y. • Cia. Cubaña de Oxigeno, Havana

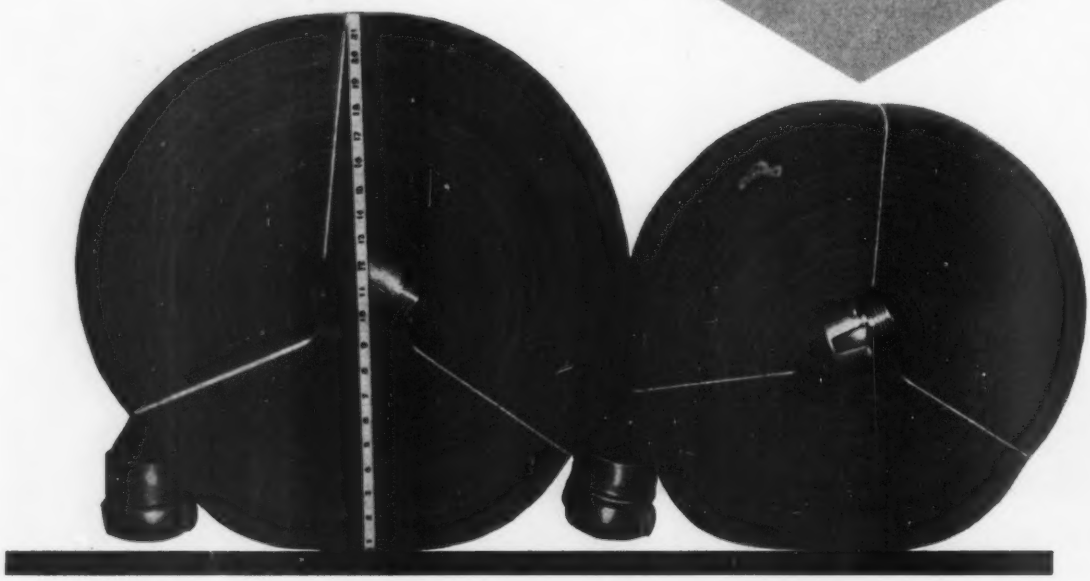
AIRCO (All subsidiaries or divisions of Air Reduction Company, Incorporated)

MAIL TODAY!
Ohio Chemical & Surgical Equipment Co.
1400 East Washington Avenue, Madison 10, Wisconsin
Check below:
☐ Send descriptive folder on the new Lytport II.
☐ I would like a personal demonstration of the Lytport II.
NAME_____
ADDRESS_____
CITY_____ ZONE____ STATE_____

SAME AMOUNT OF HOSE...BUT LOOK

at the difference in bulk between

OLD and NEW



SMOOTH, FLAT, STRONG . . . and TAKES UP LESS ROOM

SMOOTHTEX MUNICIPAL FIRE HOSE (DACRON and COTTON)

SPECIFICATIONS

	Sizes I.D.	Coupling Tail Piece	Wt. Per 100 Ft. Uncoupled	Pressure Test
K-103	1½"	1⅞"	35 lbs.	600 lbs.
	2½"	2 31/32"	60 lbs.	600 lbs.
K-104	1½"	1⅞"	34 lbs.	400 lbs.
	2½"	2 31/32"	57 lbs.	400 lbs.

SMOOTHTEX FIRE HOSE . . . that's an accurate description of this new fire hose by Republic. By weaving small-diameter high-tensile dacron fillers into an extremely fine texture, we obtain an extremely smooth hose. Smoothtex has greater strength, is flatter, more pliable and lighter in weight than other fire hose of equal pressure test. And it will wear longer because the smooth texture of the jacket, combined with the lower weight, makes it more resistant to abrasion. Ask us about the new Smoothtex Fire Hose — you can put more footage in the same space and you will replace less often.

REPUBLIC RUBBER DIVISION

LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN 1, OHIO

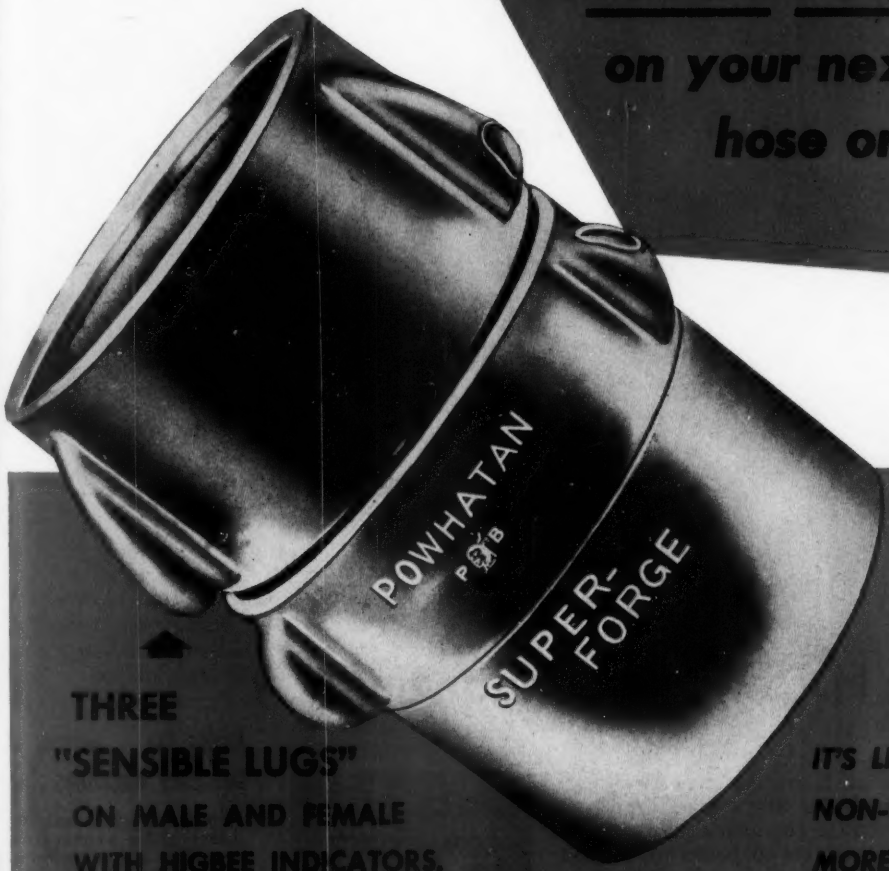
INDUSTRIAL RUBBER PRODUCTS

Specify

"SUPER-FORGE"

on your next

hose order!

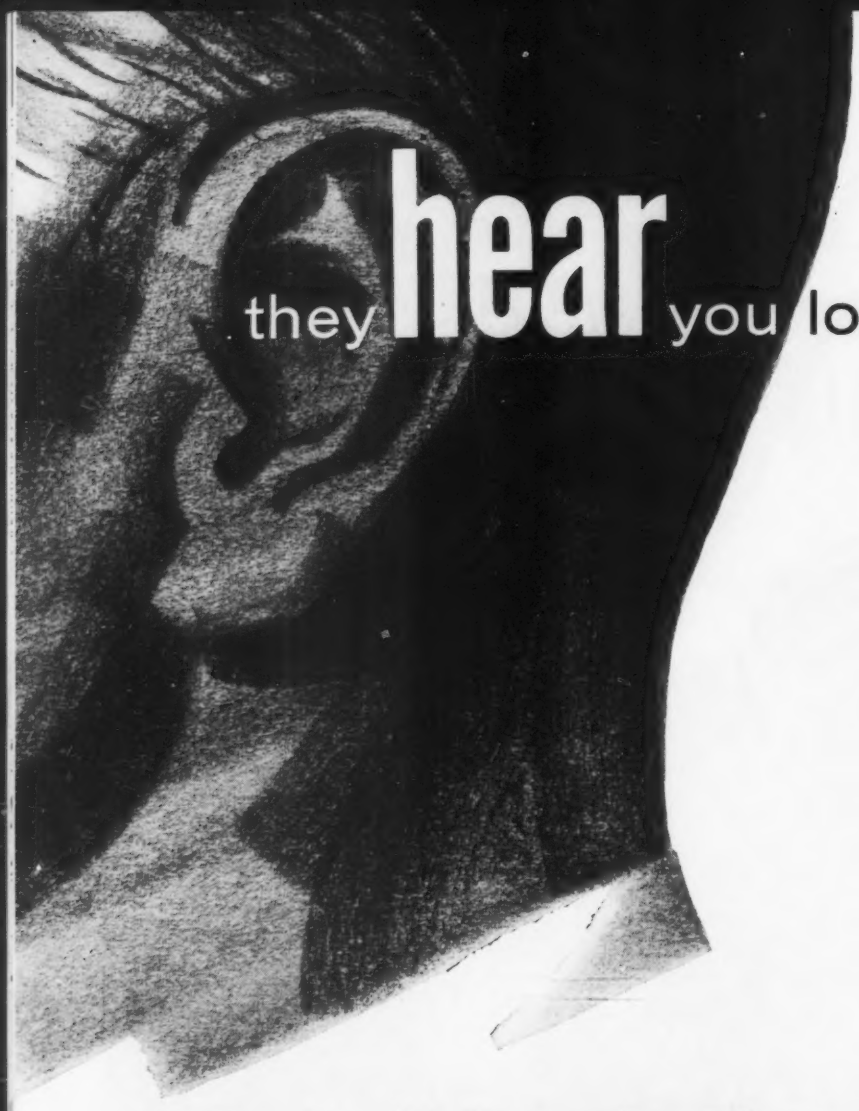


THREE
"SENSIBLE LUGS"
ON MALE AND FEMALE
WITH HIGBEE INDICATORS.
AVAILABLE IN 1½ & 2½ INCH SIZES

IT'S LIGHTER—
NON-CORROSIVE—
MORE DURABLE—
IT'S DROP-FORGED

MAKERS OF FIRE DEPARTMENT BRASS GOODS

POWHATAN
BRASS & IRON WORKS
RANSON, WEST VIRGINIA
In The Same Location Since 1892

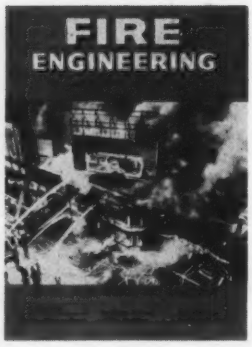


they hear you loud and clear

in Reuben H. Donnelley Magazines

Yes—loud and clear—for each Donnelley magazine deals with only one *specialized* field—the title tells straightaway what it is—performing its editorial function authoritatively and in depth. The voices of its editors are heard and heeded because they are outstanding authorities in the fields they serve. They have earned their reputation through active leadership and participation in their professions or businesses.

Each publication has this single purpose . . . helping readers carry their professional responsibilities through greater knowledge of their fields, up-to-the-minute techniques for use in those fields, and the modern products those fields call for.



Among the Donnelley Magazines . . .

In the municipal and industrial fire protection field, FIRE ENGINEERING is dedicated to serving its readers by providing—clearly and authoritatively—up-to-the-minute information to help them do a better job. Proof that this concept *works* for both readers and advertisers: with its ABC audited circulation at an all time high, FIRE ENGINEERING carries almost twice as much advertising as all other magazines in the field combined!

THE REUBEN H. DONNELLEY CORPORATION
Magazine Publishing Division • 466 Lexington Ave., New York 17, N.Y.

Sports Age / What's New in Home Economics / Electricity on the Farm / Ice Cream Trade Journal / Wastes Engineering
Water Works Engineering / Fire Engineering / National Rug Cleaner / National Cleaner and Dyer / The Laundry Journal

The Only Good Thing in Smoke is the Scott Air-Pak

Hydrogen Sulphide
Carbon Monoxide
AmmOnia
Air-PaK
AcEtone

The Scott Air-Pak is the only good thing in smoke because it's the safest, most comfortable respiratory protection you can wear. It provides pure, cool, fresh air to satisfy your every breathing requirement. With a Scott Air-Pak there is no rebreathing of stale air . . . no regenerating process . . . no acrid chemicals! The man wearing a Scott Air-Pak has confidence in his breathing safety. He does not worry about the oxygen content of the atmosphere he enters . . . or the percentage of toxic gas present. He breathes independently of surrounding atmospheres because he carries his own supply of pure fresh air. Yes . . . the *BEST* thing in smoke is a Scott Air-Pak!

Scott Pak-Alarm
An Audio-Video Safety System for all Scott Air-Paks.

Scott Air-Pak with Scottoramic Mask.

Scott AVIATION CORPORATION
215 ERIE STREET
LANCASTER, NEW YORK

Export: Southern Oxygen Co., 250 West 57th Street, New York 19, N. Y. • Canada: Safety Supply Co., Toronto — Branches in Principal Cities

SCOTT AVIATION CORPORATION, 215 Erie Street, Lancaster, N. Y.
Please send me the following literature and prices:

☐ Scott Air-Pak brochure; 6-pages, 2-color. ☐ Scott Pak-Alarm Specification sheet.

NAME _____ TITLE _____

ADDRESS _____

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His community showed the way...

Chief Thomas F. Gorman of Quincy, Massachusetts, knows that this new home will have adequate fire protection facilities. His city recently became the first municipality to pass an ordinance requiring that all new residential and institutional construction have fire detection and alarm facilities within its confines.

Chief Gorman feels that this supplement to the city's Gamewell Type A Fire Alarm System now gives Quincy the most advanced fire prevention and protective facilities available. All residential and high value areas are adequately covered by strategically located curb boxes. In addition, Master Boxes tie all hospitals, public schools and a great many of the larger industrial buildings into the municipal system. In a matter of seconds after any box is pulled, Quincy's entire fire defenses, as well as police and waterworks, know its location.

Make certain that *your* community officials and safety authorities know about Quincy's positive steps toward reducing loss of life and property. Gamewell Company will be happy to supply copies of this ordinance for your use. And, if you desire, we'll conduct a fire survey to assist you in planning or expanding your alarm system. Write the Gamewell Company, 1247 Chestnut Street, Newton Upper Falls 64, Massachusetts.

Recent New Installations of Gamewell Fire Alarm Systems

- Chester, Penna. .... Type "A"
- Las Vegas, Nev. .... Type "B"
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FIRST...WHEN SECONDS COUNT

VOL. 113, NO. 1

FIRE ENGINEERING

THE JOURNAL OF THE FIRE PROTECTION PROFESSION SINCE 1877

JANUARY, 1960

Past Achievements Spur Future Efforts

Fire losses in the United States for 1959 in all probability will show a decrease. As this is written, it is impossible to accurately predict what the final total will be, but barring unusual last minute experience, it appears that for the first time in 10 years the ever-increasing upward trend has been arrested. Percentage-wise the drop may appear insignificant, yet it is a remarkable achievement when contrasted against the reported inflationary trend of our economy and the continued building boom in this country. It is impossible to pinpoint all reasons for this reversal of past form, but the figures indicate that employment of better fire protection facilities and increased fire prevention efforts of the fire service are beginning to show tangible results beyond early expectations.

The effectiveness of the efforts to lessen fire losses has been noted before by many agencies. One example is the remarks of J. H. Finnegan, manager, Actuarial Bureau, National Board of Fire Underwriters, in an address before the 1959 annual meeting of the National Fire Protection Association at Atlantic City. Dr. Finnegan traced the fire losses of this country from 1895 through 1958 and compared the trend in terms of our increasing prosperity as a nation. One of his conclusions was that proportionally our fire losses have actually been declining when measured against the national wealth. To him, this indicated that fire protection and prevention activities have been and still are effective.

If the foregoing reasoning is sound, then it should be taken as encouragement for the fire service to redouble its efforts toward increased efficiency in 1960. It has been stated that more than 50 per cent of all fire departments are cooperating in the home inspection program promoted by the International Association of Fire Chiefs. The contribution to the nation's safety and welfare by this work may be difficult to measure at once, but the reported results in those communities where such inspections are presently made, indicate that fire safety education of the public in this manner is not the hopeless task that some cynics would have us believe. On the contrary, it may well prove to be a sound argument for expanding fire department service in an individual community.

During 1958 over 558,000 fires occurred in homes with damages exceeding $300 million. It is possible that with the increased housing activity in this country an even greater number of fires in this category will be recorded for 1959 and still more in 1960 as we continue to expand. The principal causes of residential fires will most likely continue to be defective heating and cooking equipment and careless smoking. In many areas of this country recent legislation changes tend to outlaw certain heating devices which have contributed to the great losses in this category. With this legal assistance, fire departments in the areas affected should take advantage of the opportunity to insure a drastic reduction in fires from this cause. With a little extra fire prevention effort carried directly to the residents, a remarkable loss reduction may be expected.

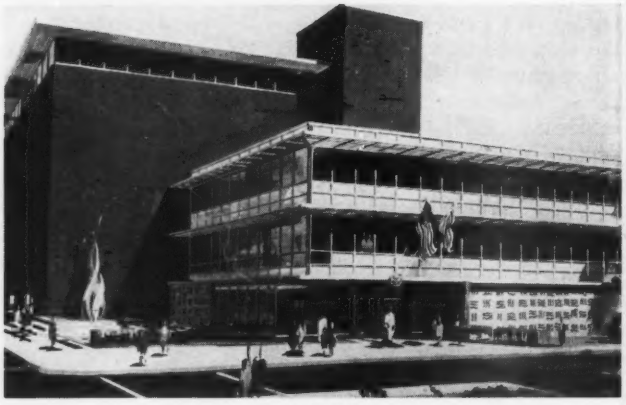
Success in this field should not cause fire officials to lose sight of the natural attrition which time has on the finest of apparatus and equipment. In order to maintain a strong position a constant watch must be maintained in order that we do not let our guard down in complacency and then discover too late that outmoded practices and tools have become a severe handicap to effectiveness. It has become evident that fire service progress from a defensive position to the offense has been rapid in recent years. This has resulted in better service to the people, but it can only continue as long as fire administrators maintain constant pressure for even greater advances.

In this regard, increased research activity is indicated, not only to improve present practices but to discover new and better methods of operation. During 1959, research was of important significance and contributed substantially to the professional standards of the fire service. In 1960, still greater effort is called for in order that fire fighters in all categories keep pace with the boom pace of community and industrial growth.

Hlow O'Brien

Lieutenant James Kehoe in charge of the Chicago Fire Department's recently created arson bureau at work in laboratory. The 10 men assigned to the unit attended arson courses at leading universities
—*Official Chicago F. D. photos*

Lieutenant George Schuller, officer in charge of the photo section, checks enlarged photo of fire-gutted building. The unit covers all major Chicago fires



Front view of the administration building presently being built on the site where the Great Fire of 1871 is believed to have started. At left is the proposed fire academy for training future fire fighters

Chicago Strides Forward

THE CHICAGO FIRE DEPARTMENT, under the leadership of Fire Commissioner Robert J. Quinn, has taken some giant steps toward a complete remodeling and modernization in recent years. Quinn, a veteran Chicago fireman for better than 30 years, has long believed that fire fighting methods have been at a standstill for too many years, and that improvement in operations and fire prevention has been due fire fighters for some time. Since he became fire commissioner early in 1957, Chicago's firemen have seen many effective changes in the department.

A new training academy, administration building and fire quarters will soon be constructed on the site where Mrs. O'Leary's cow supposedly kicked over the lantern to start the Great Fire of 1871. This new area, a block square, will serve as headquarters and will include the latest and most modern equipment for training and administration.

Ground was broken for the building on the edge of Chicago's Loop on August 31, 1959. It is expected to be completed within 18 months.

Fire prevention stressed

Perhaps the biggest changes were made in the bureau of fire prevention where, under the leadership of Division Marshal Robert J. O'Brien, the message of fire prevention and its importance is being brought to thousands each year. The fire prevention bureau is made up of one division marshal in charge, four captains, six fire prevention engineers, 150 lieutenants and nine firemen. Of these, there are numerous special inspection teams such as hospital men, nursing home inspectors, night club men, hotel inspectors, school inspectors, license inspectors, task force inspectors, gasoline station inspectors and many other details. The fire prevention bureau has a number of programs including "Operation Action," "Operation Hazard" and "Fire Prevention Demonstrations."

"Operation Action" is put across by a group of 59 lieutenants and nine

firemen who inspect homes and buildings of all types on a door-to-door basis and, since its beginning in March 1958, 281,685 buildings have been inspected. In most cases, violations are corrected on the spot. However, legal notice is served to those who fail to correct their violations immediately and a reinspection is made 15 days later. If the violations are not cleared up, legal action is taken. This program has proved tremendously successful.

"Operation Hazard," is designed to use the facilities and manpower of the ordinary fire company to inspect factory and large buildings within their respective "still" district, and to familiarize the "still" alarm companies with these buildings. Each day some 20 companies, usually 10 engines and 10 hook and ladders, leave quarters to inspect the larger buildings in their districts for fire hazards and to note building construction. This program has proved extremely successful since its beginning in 1957.

The program has now reached a point where just about every factory and mercantile unit is being inspected once a month and many hazard companies are now patroling residential areas checking for rubbish and other hazards in alleys, on or under back porches. In one month's time, some 4,000 buildings were inspected by companies on "Operation Hazard."

Each Saturday and Sunday during the summer months, fire prevention demonstrations are staged in different neighborhoods throughout the city so that the message of fire prevention is carried to all sections. These demonstrations consist of an engine, hook and ladder, ambulance, Snorkel, squad company, light wagon, battalion chief division fire marshal, fire prevention clowns and the "Thrill Team." Last year these demonstrations were staged before some 63,000 persons, who received a complete explanation of the equipment, a self-inspection blank for their home and a small card containing the number of the fire department for placing next to their telephone. Children were treated by the fire department's "clown team" and were given balloons imprinted with the fire department's number. The Thrill Team leaps from a roof to illustrate life saving procedures. During the summer of 1959 an estimated 100,000 persons attended 38 demonstrations.

Radio and TV employed

The fire prevention bureau also maintains a nightly radio program which broadcasts information and tips on fire safety in the home and place of business and features the latest in popular music. The disc jockey on this program is a regular member of the fire department. Also, members of the bureau make numerous radio and television appearances throughout the year, always reminding the public of the importance of fire prevention.

The fire prevention bureau also has numerous billboards spotted at busy intersections throughout the city listing the department's number, as well as fire prevention slogans. Display booths are maintained at such events as the Chicagoland Fair, the Automobile Show and the International Fair. At the International Fair over a quarter of a million home inspection blanks and telephone cards were passed out to visitors aboard the fireboat.

With the opening of the St. Lawrence Seaway last spring came the problem of heavy shipping in the Chicago area. The city has three fireboats, one stationed on the lake, one in the Chicago River and the third in the Calumet Harbor. However, Quinn felt the need for more protection, not only for the large ocean-going vessels, but for the ever-growing number of pleasure craft in the lake. Added last spring were two combination fire and police crash boats, each carrying fire fighting and rescue equipment and designed to speed to the aid of a disabled craft within a matter of minutes. The commissioner hopes to add even more of these boats in the near future.

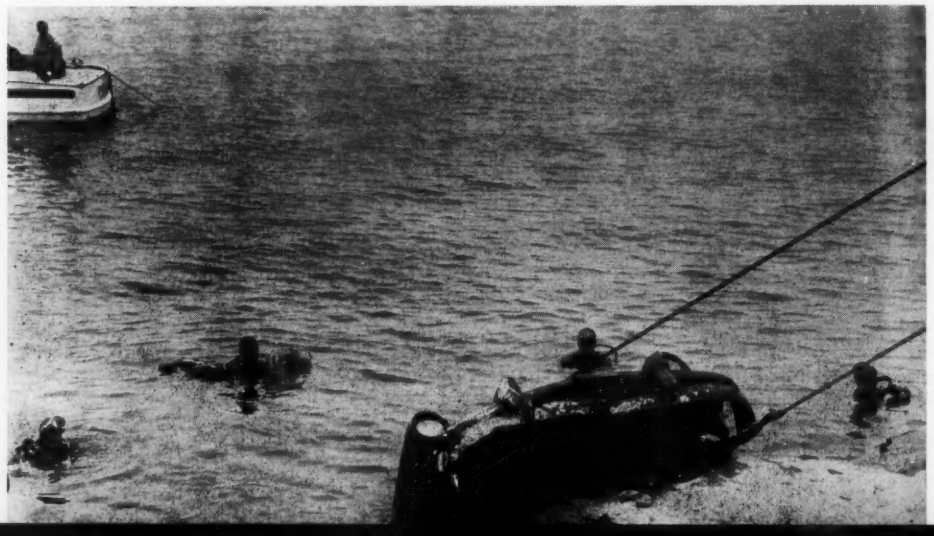
The fireboats have also been equipped with new powerful flood and spotlights which will greatly aid in fire and rescue work. Four flood units, mounted on swivel bases, were placed on top of the boats to light an area in any direction. Four spotlights with a mile range were also placed on the boats. In addition to their marine uses, the new lights provide the firemen with plenty of light from the water side of a burning building.

The equipment used in the fire and

With Modernization

By NEAL CALLAHAN

Chicago fire fighters assigned to patrol boats assist in raising auto from Lake Michigan. Because of the opening of St. Lawrence Seaway, the department's marine facilities are being expanded.



rescue field has seen a rapid change-over. The story of Chicago's Snorkels, described in the August 1959 FIRE ENGINEERING, is well known. There are three Snorkels in service, one 50-foot, one 65-foot and one 75-foot. Two 65-foot and two 85-foot Snorkels are due to be delivered before January 15, 1960.

Since trials of the Snorkels proved so successful, the department is now experimenting with a jeep pressure wagon. A pressure wagon is a hose wagon carrying 1,800 feet of 3½-inch hose for the primary purpose of reducing friction loss in high-pressure streams. The wagon has one or two stationary turret pipes mounted on it.

Although the three pressure wagons currently in service are valuable pieces of apparatus, there are certain types of fires where they are not able to do an effective job. Buildings along railroads or in areas inaccessible on all sides are examples. Presently the department is trying out a smaller pressure wagon, mounted on a four-wheel-drive jeep chassis, and equipped with a winch. It is felt that this unit will provide the punch needed in those tight squeezes where the regular wagons can't reach. The winch can pull over small walls and stacks of lumber. Railroad embankments or mud will be little problem to the four-wheel-drive apparatus.

In the past two years, three ambulances have been added to the department, bringing the present total to 19 spotted throughout the city to render assistance to persons suffering from heart attacks or injured in accidents. Chicago plans to add even more ambulances in the near future, and hopes ultimately to have 35 in service. The supervisor of ambulance service, Joseph J. McCarthy, constantly striving to increase efficiency, requires all members to periodically take refresher courses in first aid to keep abreast of the latest techniques.

Still in the planning stage is the helicopter ambulance service to provide quick ambulance service to the superhighways, expressways and toll roads serving the city. The department has also experimented with helicopters for fire fighting at some extra-alarm fires.

Volunteer rescue squads

The full-time volunteer services of the Fire and Rescue Service of the Chicago Civil Defense Corps have been enlisted (FIRE ENGINEERING, August 1959). All members of the department's 13 rescue squads have been training in water safety and life saving methods each week in various swimming pools.

Another change was the conversion from conventional battalion chief's cars to station wagons. These new "buggies," equipped with stretchers and first-aid equipment to supplement the ambulance service, are now in operation in all 30 battalions. When an ambulance is not available to respond to an accident, a battalion chief is dispatched. Besides the emergency first-aid equipment, the station wagons carry special nozzles, portable generators and some tools not normally carried on apparatus.

All 492 pieces of Chicago's fire apparatus have been equipped with a new white emergency light to help them get through the heavy traffic. Chicago was the first fire department to use these lights, and the firemen "swear by them." The light's beams oscillate across the area in front of an apparatus for about a half-mile, hitting the rear-view mirror of any car ahead. The Illinois State Legislature recently passed a law limiting the use of this type of light to fire apparatus.

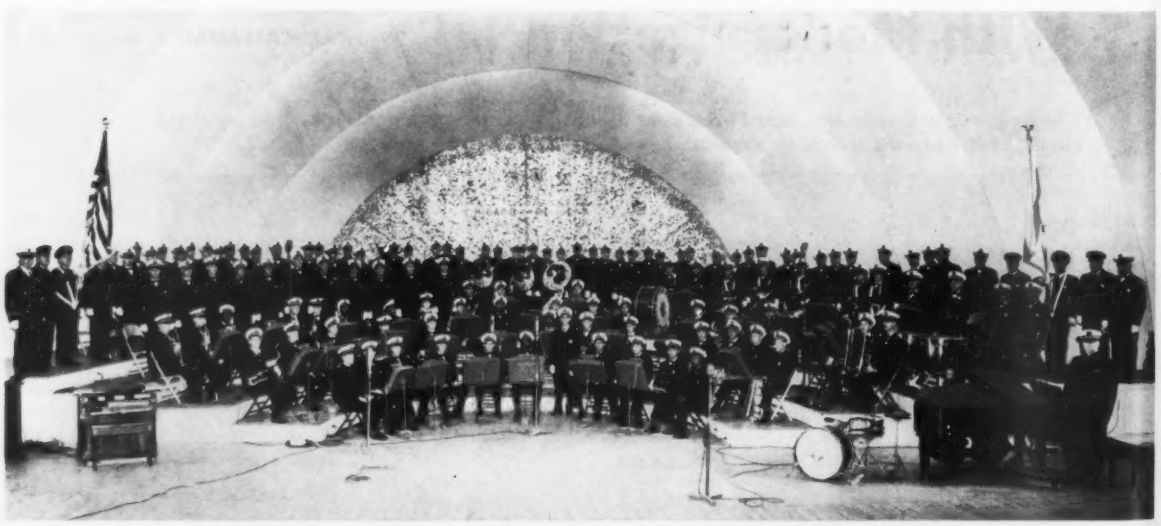
The department repair shops have undergone a complete revision. Apparatus in need of repair are pushed through on an assembly-line basis, thus saving valuable hours. Two portable grease units were added to the maintenance corps, and minor upkeep like grease and oil changes is now performed in company quarters rather than taking the company out of service.

All engines and hook and ladders are new. A recent survey shows that six years is the average age of all equipment now in service. During 1959, a 100-foot metal aerial ladder truck and two 144-foot ladder trucks were placed in service.

There have also been changes in the fire alarm office. Now, instead of a company wasting precious seconds "stilling" out on the key, this function is performed in the fire alarm office, thus insuring faster push-outs for all still-alarm companies. All Chicago equipment carries two-way radios and maintain constant contact with the fire alarm office.

Nearly all fire alarm boxes within the city limits have been converted from the key type to the pull type, insuring that alarms will be transmitted without delay.

The photographic section is another innovation. Still in the growing stage, this unit is composed of six firemen, a civilian consultant and a lieutenant in



Chicago Fire Department Band and Glee Club are shown in Grant Park bandshell where they have given three well-attended concerts. The band marched in the Tournament of Roses parade on New Year's Day, the first time a fire band participated

charge. Headed by Lieutenant George Schuller, the photographers respond to all extra alarms in the city where they photograph department activities in both stills and movies. Films are used for educational, investigation and public relations purposes. Larry Morris, veteran photographer for more than 30 years, acts as a consultant to this section, and responds to extra-alarm fires to assist the photographers in their coverage. Since its organization, the photographic section has presented displays at numerous civic functions and has been called upon to show fire prevention films at meetings of numerous civic organizations. It is planned to expand this unit in the near future.

The bureau of fire investigation is another creation. Before beginning operations, this unit, staffed by five lieutenants and five firemen, attended arson and investigation courses at leading universities including the University of Ohio and Purdue. Headed by veteran fire fighter, Lieutenant James Kehoe, the unit responds to all fires of the 3-11 caliber, and when the cause of any fire is unknown. Fires are investigated until the cause is determined. The unit works in close cooperation with the Chicago Police Department's arson unit, and with the Corporation Counsel's office.

Manpower augmented

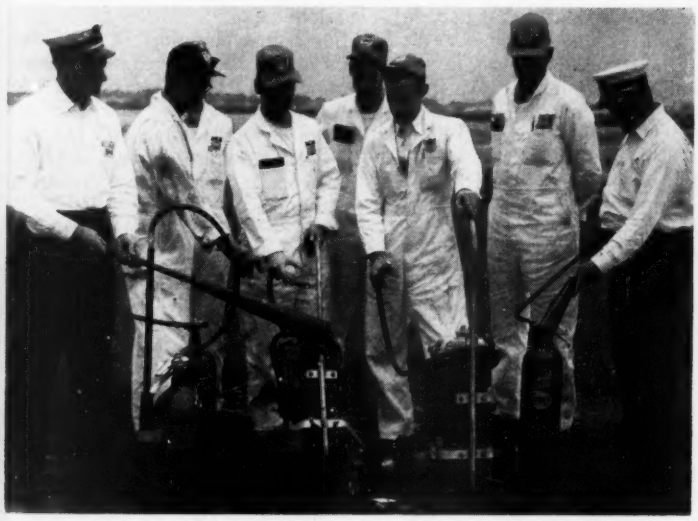
The department is expanding on all levels. On January 1, 1959, some 80 lieutenants were added to the fire prevention bureau, and 100 fire fighters to the department. Two deputy fire marshals were also added to aid in supervision of personnel and equipment.

Besides these improvements, the health and morale of the department have not been forgotten. The formation of the new 120-piece fire department band and glee club has provided the department with proper representation at civic affairs throughout the city. The band has staged three concerts in the open-air bandshell in Grant Park, and each time they have played to either a capacity or near-capacity crowd. The band has also participated in the Michigan City Music Festival where they took second-place honors and were the featured attraction of the Chicago Tribune Music Festival of Indiana. The glee club has also participated in the annual Grant Park concerts, and members of deceased firemen's families have requested on numerous occasions that the glee club sing at funeral services.

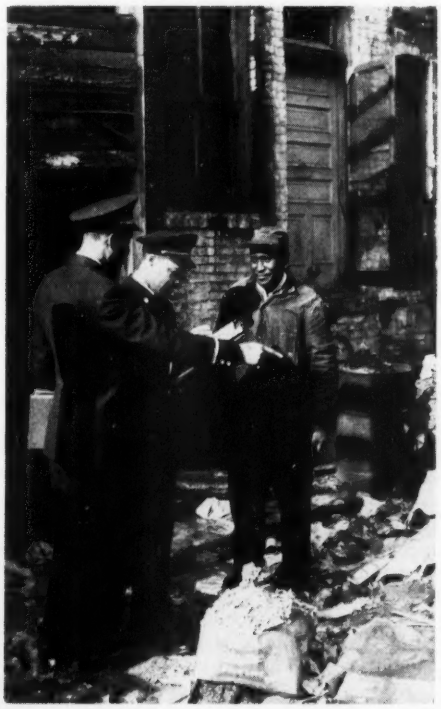
Another new group is the drill team made up of nearly 400 members of the department. The drill team

Continued on page 61

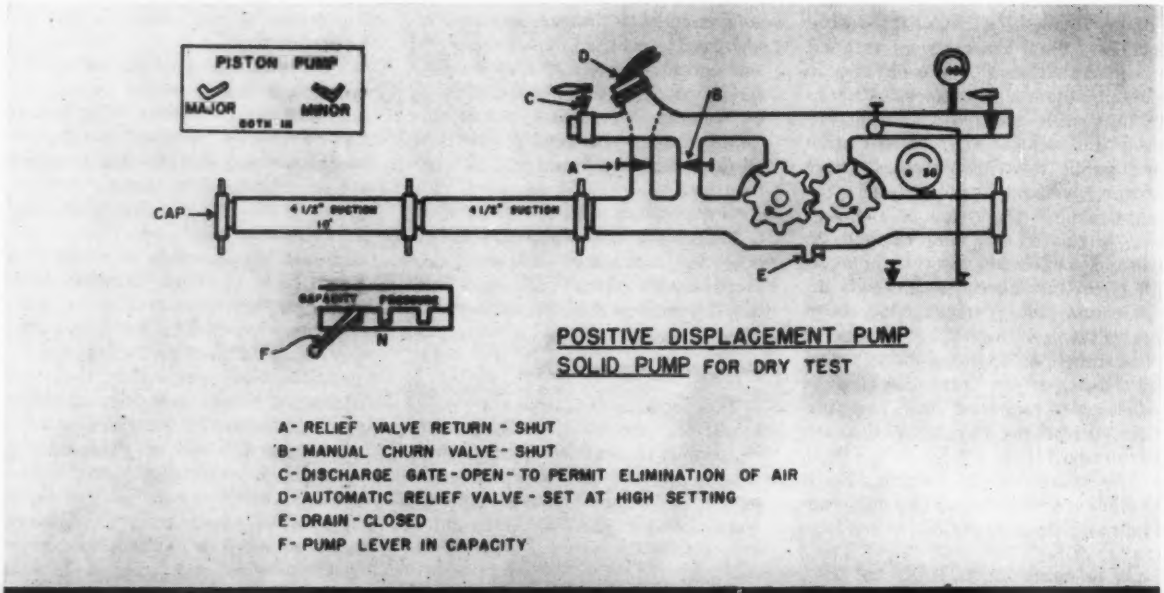
New quarters, typical of Chicago department's modernization, houses engine, hook and ladder, ambulance and first deputy fire marshal



As part of "Operation Hazard," two fire officers demonstrate proper use of extinguishers to air line employees. Expanded protection is planned for airports



Inspectors assigned to "Operation Action" point out violation. More than half of Chicago's buildings have been inspected as part of this program



DRY TESTING FIRE PUMPERS

By THOMAS D. RYAN*

DRY TESTING fire pumps has been advocated for some years by progressive fire chiefs and company officers and is practiced by competent master mechanics and pump operators. The techniques required have recently found their way into the literature and operating manuals of fire apparatus manufacturers and appear in the sixth and latest edition of the National Board of Fire Underwriters' publication "Fire Department Pumper Tests and Fire Stream Tables." Dry testing is now one of the items under acceptance tests.

With the increased emphasis on preplanning all phases of fire operations, the practice of determining through this procedure probable success or failure to prime a pumper at an actual draft operation should be followed at regular intervals. The recommended frequency of such tests is variable, depending on the locale and the likelihood of the company encountering draft situations, but most authorities are in agreement that it should be performed at least monthly.

By the term "dry testing" is meant the practice of going through the priming procedure, but instead of a strainer, the pumper's inlet cap is placed on the end of the suction line. Other steps follow the standard procedure for priming.

The assurance that a fire pump will prime successfully can be ascertained in company quarters by this simple test, which pertains to all kinds of pumps, varying only in minor details. Although fast disappearing from the fire service, rotary and piston pumps are still found in some areas and for this reason are included in this discussion.

The test should be conducted in quarters, behind closed doors, for reasons explained later, when leaks are being traced by audible sounds. Arrangements for conducting engine exhaust gases to the exterior of the building must be made before the tests are carried out. Both suctions should be placed on the pump inlet or inlets and tightly capped. All other suction inlets should be tightly capped, after their gaskets have been checked and replaced if missing or in poor condition.

Positive-displacement-type (rotary or piston) pumps need only be "solid" or tight on the suction side, i.e., no open pump or gage drains, or bleeders from the auxiliary cooling lines; check the priming oil supply. A discharge gate must be open to release air when priming but all other openings must be closed and/or capped.

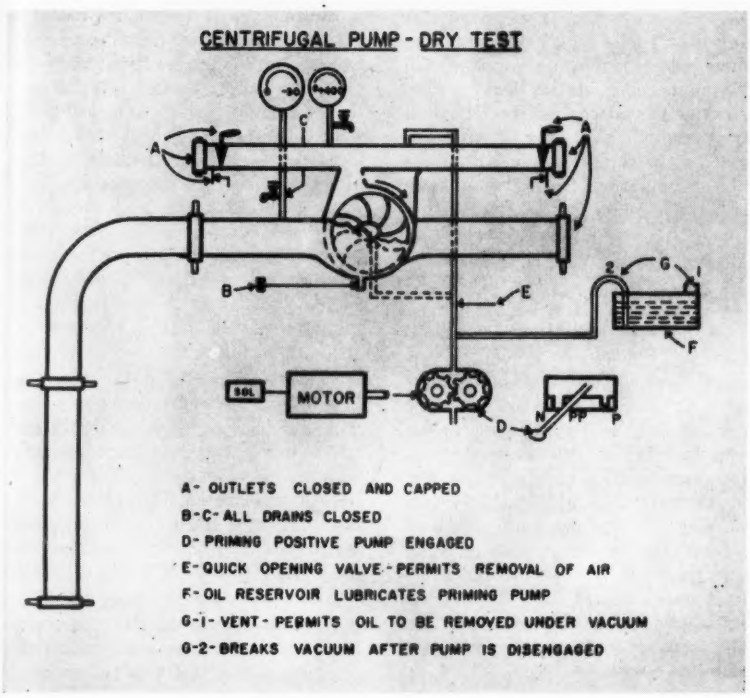
Centrifugals incorporating rotary priming pumps require checking the priming oil supply and the vent hole in the tank cap as well as the vent in the discharge pipe from the small oil tank or bowl. The hole in the cap permits air to seep in to replace the oil as it is removed and the other vent prevents a continuous siphoning action after priming is discontinued. This type of pump must be "solid" or tight on *both* suction and discharge sides. All discharge gates must be closed and capped and, to prevent gate leaks, the bleeders must be shut off. Control valves for deck pipes must be tightly closed and gage drains choked off, if they do not lead back into the fire pump. All drains for the fire pumps and auxiliary cooling lines must be closed.

On both type pumps, if unsatisfactory results are achieved on the initial test, remove the suctions, cap the inlet or inlets, and repeat the test procedure. If results improve, it indicates the trouble is most likely a defective (porous) suction, leaky gaskets or connections.

Leaks detected at the packing of the pump shaft may be overcome by tightening the packing using a special key. However, it should not be made so tight as to shut off the leak completely, especially on the centrifugal type. A tiny trickle of water, or seepage of air, is usually permissible. It has been found that too tight a seal has a tendency to heat up the packing and score the shaft, often necessitating packing or shaft replacement.

Other leaks may be taken care of immediately following the dry test or emergency measures taken at an ac-

*Captain, Supervising Engineer, Fire Department, City of New York



tual operation. Leaks at drains may be overcome by tightening the packing nut or replacing the packing. In an actual pumping emergency a piece of soap, a ball of wet tissue paper or a tapered wooden plug may be inserted into the open end of a bleeder or drain. In any case, these measures will usually seal the leak during priming operations. If the leak is on the suction side, the vacuum created will have a tendency to pull the improvised plug inward and hold it, thus sealing the leak during both priming and discharge operations. Once water is obtained and actually discharged, a leak on the discharge or pressure side of either type of fire pump will be sealed by water under pressure, preventing the admission of air.

Performing the dry test

Positive Displacement Type (Rotary or Piston): The sequence steps for performing the test are as follows:

1. Relief valve turned down tightly, and if means provided, its return valve shut.

2. Close churn valve tightly.

Steps 1 and 2 prevent the passage of air from the discharge to the suction side of the pumps during the test or during actual priming operations.

3. One gate is left open for air discharge.

4. If pressure lubricator is provided, operate for several strokes to insure a tight seal around and between the rotors.

5. Engage the fire pumps. Use "capacity" gear ratio for rotary pumps and "both pumps" for the piston type. This insures a more rapid exhaust of air from the suctions and fire pumps.

The recommended motor speed is a fast idle, generally 600 to 700 rpm. Excessive speed may cause vibration in a rotary pump and rotors may chatter. In the piston type, the leather washers of the pump pistons may heat up, suffer undue wear and possibly score the walls of the fire pump cylinders.

If a good vacuum is attained, it is unnecessary to check how long it can be held, since on positive displacement pumps, leaks on the discharge side do not mitigate against successful priming or discharge operations.

The exact location of leaks on the suction side may be found after the dry test attempt by supplying any suction inlet with a pressurized water line after closing and capping all gates. This latter move is made only to prevent indiscriminate water discharge in the area of the test. Where air has leaked into the suction side of the pumps during the dry test, water will now emerge.

If the results of the tests are poor, and there is no external leak, it is assumed the trouble is internal: Worn or stuck valves in the piston type or worn rotors in a rotary gear pump. In such cases, notify the maintenance shop or commanding officer, as the solution of such problems is normally beyond the scope of the regular company operator.

Centrifugal Type: As previously explained, the pump must be tight or "solid" on both sides.

1. Gated inlets, where provided, should be closed and capped.

2. Governor and/or relief valve drain is closed.

3. If the pumper is equipped with a relay relief valve, the shut-off and drain for such should be closed.

4. Engage the priming device and actuate the priming (whistle or quick opening) valve (operation may be manual or automatic with the operation of the primer). Do not engage the fire pumps unless necessary in order to drive the priming pump. Unnecessary running of the fire pump may, at times, heat up the pump packing or result in other damage, especially on the older types. However, most of the newer types are designed to run dry during the priming operation or dry test.

Manufacturers' recommendations concerning motor speeds when priming vary according to the type of priming device. On the types most commonly found on pumpers, the recommendations are predicted on the gear ratios between the motor and fire pump transmission and the fire pump and/or priming pump. For small positive displacement primers many authorities recommend a general figure of 700-1,200 rpm engine speed when priming, regardless of whether or not the fire pump turns at the same time. Others advocate a motor speed of 750-1,000 rpm.

If a rotary primer is driven by a starting motor (electric push-button type), the fire pump need not be engaged nor the motor accelerated, although some recommend a fast idle in order to replace the charge in the vehicle battery. On one recent introduction, the priming pump is driven by the fire pump transmission but only after a driving clutch is engaged by motor vacuum. On this type the fire pump must run during the dry test. The ejector type of primer employs the exhaust gases of the motor in the venturi principle to withdraw air from the fire pumps and a motor speed of 1,500 to 2,000 rpm is usually recommended. Operating essentially

on the same principle as the exhaust primer, a new type of priming device, the air venturi, employs air from the vehicle's braking system to accomplish the same result. In this case, the engine speed must be sufficient to keep air pressure in the supply tanks up to par. This type of priming system is still largely in the experimental stage.

Another priming arrangement is one in which a tap-line, usually metal tubing, runs from the fire pumps to a priming reservoir. A second line from the reservoir to the intake manifold of the engine permits the air being drawn into the cylinders to be exhausted from the reservoir and thence from the fire pumps. For high vacuum, motor speed recommendations are moderate while operating this primer, ranging from 1,200 to 1,500 rpm.

Generally speaking, the duration of the dry test should not exceed a period of one minute, as it is usually pointless to do so. The National Board states that the maximum vacuum developed should be at least 20 inches of mercury, and experience indicates that most priming devices will develop maximum vacuum within a period of 20 to 30 seconds. Continuous and unnecessary operation of the primer and fire pump may result in damage to either or both.

Trouble shooting

If the vacuum reading is unsatisfactory, quickly cut the ignition switch (while the pump is under some vacuum) and place the ear at the various pump inlets or outlets. Locations of leaks may be audibly indicated at the deck pipe, discharge gates, gated inlets, gage; pump or cooler drains; pump casing, piping or assembly.

As previously mentioned in the positive displacement discussion, further indication of the location of leaks may be had through the use of a hydrostatic test at ordinary city water pressure. The usual medium is a charged line connected to suction or pressure side of the fire pump. It is easier to see a leak than to hear it and most air leaks will become water leaks when some internal water pressure is applied.

One common leak not easily detected during a dry test or priming operation is at the valve in the suction line between the fire pump and the booster tank. As long as there is water in the tank, the leak may not be noticed. However, when the booster tank is emptied (this may happen during prolonged drafting operations), the valve will leak air much faster than it formerly leaked water. If it does not result in loss of prime, a sizable leak at this source will most certainly result in a rough stream. If the prime is lost, it may be impossible to reprime because of this leaky valve. A leak at this source will be indicated by the fact that in spite of what appeared to be complete pump drainage after an operation, the fire pumps are filled with water when the suction caps are removed some time later.

Priming valve defects

Another type of leak, more uncommon and difficult to detect, is one caused by a defective priming valve (Item "E" in Fig. 2). If the fire pump does not run during priming operations, the tap-off, as shown by the solid line tube, is from the top of the fire pump. A slight leak at point "E," due to valve not seating properly, may allow small amounts of water under pressure to flow into the priming pump, around and through its rotors and spill to the ground. A sizable amount of water, flowing past the quick opening valve, will back up at the rotors and empty into the oil reservoir, unless checks are provided in this line. This situation will be duplicated and location of the leak indicated by charging the fire pumps with a line under pressure from an outside source. On a dry test, an inward pull will be noticed at the discharge point from the primer, when it is disengaged.

If the primer and fire pump run concurrently, the tap-off is from the eye of the impeller, as shown by the broken line tube in the same figure. On some pumps, depressing a button actuates a solenoid which, in turn, starts an electric motor geared to the priming pump, at the same time allowing motor vacuum to open the priming valve. When the button is released, at top vacuum on a dry test or when the pump is primed at draft, the motor and primer cease to run but motor vacuum may not be completely shut off, continuing to pull the priming valve "E" slightly off its seat. Air is then permitted to enter the discharge outlet of the primer, pass through the rotors and enter the eye of the impeller, cutting down on the vacuum created at draft or shortening the length of time it may be held on a dry test. The cause of this trouble may be detected on a dry test by the fact that the vacuum created (particularly while it is high) may attempt to operate the priming pump backwards, after it is disengaged. The inward pull at the primer discharge opening may be detected by hand or by holding a piece of paper over it.

If the results of the dry test are satisfactory, and yet the performance of the pumper at draft is limited as to lift or discharge, we must assume the trouble is in the suction line, fire pump or motor. Troubles in the suction line may arise from using too small diameter suction hose, attempting too high a lift, operating at high altitude, mesh in the suction hose strainer too fine, clogged suction or pump strainer, water too warm (over 85°F) or aerated. In some instances, it has been found that the lining of the suction hose may partially or completely collapse under vacuum, restricting or blocking the waterway.

Leaks on the discharge side have little harmful effect once water is successfully discharged. Leaks on the suction side, however, may not only prevent successful priming, but even if, by the employment of methods to be discussed in a future article, water is discharged, the amount of water and the height to which it can be lifted will be limited.

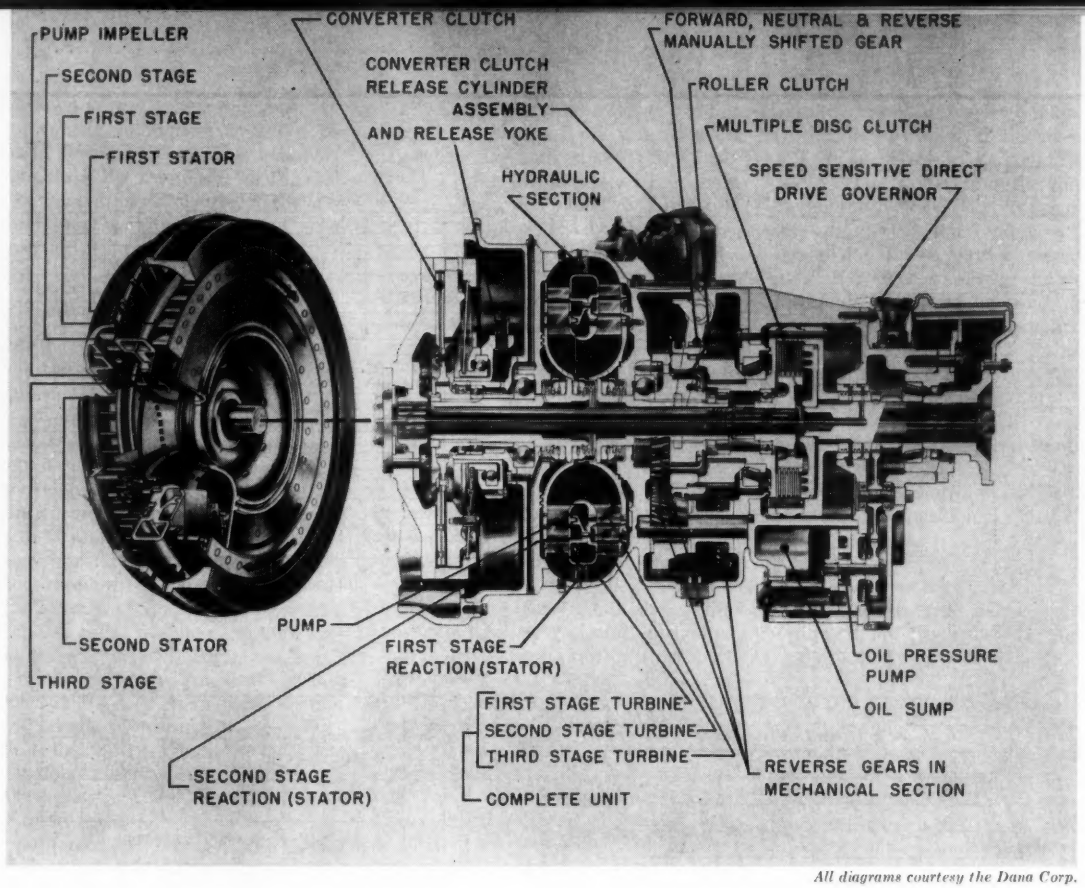
Another reason for the failure of the pump to deliver rated capacities of water is the fact that the motor is not properly tuned up or is running at insufficient speed to do the desired job. Wrong transmission gear position has often been the cause of the trouble and in other instances, the stage valve has been found improperly adjusted or inoperative. Internal defects such as worn, sheared or blocked impellers demand the attention of the shop crews.

Anticipated results of dry test

Many departments in their "specs" and the National Board of Fire Underwriters in its red book have set up a standard of 22 inches of vacuum on a dry test of a new pumper. It is further stipulated that the vacuum should be held with a drop not in excess of 10 inches in 10 minutes. However, for pumpers already in service, many departments have lowered their requirements and accept as minimum a vacuum of 15 inches created within a period of 15 seconds. Since 1 inch of mercury will lift water statically to a height of 1.113 feet, a reading of 15 inches is deemed adequate for priming in areas where the lift is not likely to be excessive. A pumper is classified as in "good condition if it can attain a vacuum of 15 to 20 inches and hold it for at least one minute.

While this ability to hold vacuum for a specified time after the primer is disengaged is indicative of the tightness of the pump, it is not necessarily an all-important factor in drafting operations in either type of fire pump, as will be explained later.

Continued on page 66



All diagrams courtesy the Dana Corp.

Fundamentals of Torque Converters

Basic operating principles of a form of "automatic transmission" rapidly gaining popularity for fire service apparatus

By E. W. ZINGSHEIM*

ALTHOUGH OPERATORS of buses in the United States, Canada, parts of South America and Europe are very familiar with torque converters, their use in fire trucks has been rather recent. Based upon this fact, we will attempt in this article to cover the fundamental principles of the torque converter, and its operation in a fire truck.

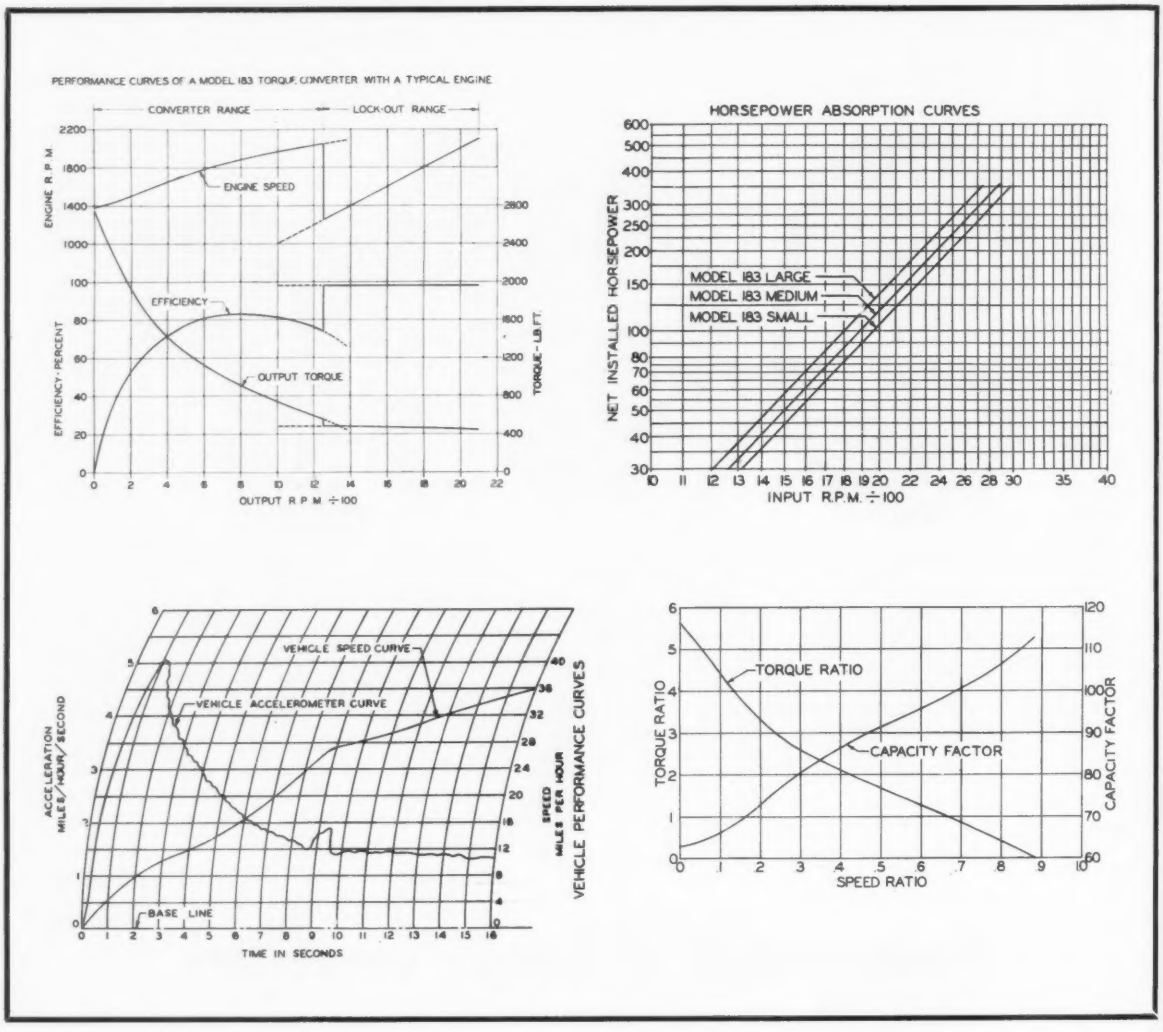
There are several types of converters, such as the single-stage, two-stage and three-stage. Since the three-stage type is the one currently being used in high-horsepower, custom-built fire apparatus, we will confine our analysis to this type.

* Chief Engineer, Hydraulic Transmission Div., Dana Corporation.

Referring to the sectional view of the Turbo-Matic transmission shown in diagram, note it is made up of four major components. From left to right the single plate clutch is mounted directly on the engine flywheel. The driven disc of this clutch is splined directly to the hub connecting it to the converter or hydraulic section. Next comes the mechanical section which is connected to the converter section by a roller clutch. The purpose of this roller or free-wheel clutch will be explained later. The gears shown in the mechanical section are only used for reversing the vehicle. The last section contains the hydraulically operated multiple-disc direct-drive clutch, oil sump and direct-drive oil pressure pump. You will note that the outer member of the direct-drive clutch acts as the output shaft. The inner splined hub of this clutch is mounted on a shaft which extends through the center of the transmission and is connected directly to the engine crankshaft by means of an adaptor hub. Clutch discs are splined alternately to the outer and inner members.

Hydraulic section

The three-stage converter is made up of six elements as follows: Pump, first-stage turbine, first reaction, second-stage turbine, second reaction and third stage turbine. With the front or converter clutch engaged, the engine turns the converter pump, imparting kinetic energy (energy due to motion) to the fluid. As the energy-



loaded fluid passes through the first-stage blades in a clockwise direction, this energy is converted to torque. However, as the fluid leaves these blades it is moving in the opposite direction. The first-stage reaction blades redirect the fluid to a clockwise direction. It then passes through the second-stage turbine blades adding additional torque. This procedure continues as the fluid passes through the second-reaction blades and third-stage turbine and re-enters the pump for the beginning of a new cycle.

If the turbine is held stationary during this action, the accumulated torque of the three turbine stages is equal to approximately five and one-half times the input or engine torque. It must be remembered the entire action takes place in a fluid medium. There is absolutely no mechanical connection between the input and output shafts of the hydraulic section. Instead of torque converter, a more comprehensive name might be a hydraulic torque multiplier. This high-stall torque ratio (5½) makes additional gearing unnecessary during the initial acceleration period of the fire vehicle.

Perhaps a better understanding of the operation of the converter can be obtained if we compare its use with a conventional five-speed mechanical or gear-type transmission as used in a custom-built fire truck. In most cases the first speed shift (between 5 and 6 to 1) is either blocked out or not used. Starting in second speed with a ratio of approximately 3¼ to 1, the driver is forced to make manual shifts into third, fourth, and fifth speeds as the truck accelerates. Even in a fire truck where stop and go requirements are minimized, considerable shifting up and down is required, with the usual clutch pedal manipulation.

The conditions are entirely different in a vehicle equipped with a torque converter. The first noticeable feature would be that the clutch pedal has been eliminated. To operate the vehicle the driver merely shifts a short lever from its neutral position into forward drive. This and the reverse shift are the only manual operations required. Since this control is small and seldom used, it can be located in any unobstructing position within reach of the driver.

After the shift into forward, the vehicle is ready to operate. With the throttle wide open, the instant the truck begins to move, the torque on the propeller shaft is five and one-half times the input or engine torque. Every start is made in converter range, with the flow of power through the transmission as shown in the top half of the sectional view in Fig. 1. Note the drive is taken through the locked-up roller clutch. As the vehicle accelerates with a smooth continuous flow of power, the torque ratio decreases. The expression "torque ratio" is being used in this case in place of the bet-

ter known term "gear ratio" because as previously mentioned, no gears are used in forward drive. This action is so smooth it is not unusual for the riders to be entirely unaware of the excellent accelerating ability of the converter.

Direct drive

As the vehicle continues to gain speed the converter torque ratio approaches 1:1. Although the torque in the propeller shaft is now approximately equal to the engine torque, its speed is about 900 rpm slower than engine speed. At this time a speed-sensitive governor driven by the output shaft makes an electrical contact, closing the circuit to the solenoid-operated direct-drive valve. The speed of the vehicle at this time is approximately 25 miles per hour, depending upon the engine, axle ratio, tire size, etc. of the particular truck. With the direct valve in the open position, oil at 50 pounds pressure is directed behind the direct clutch piston. As the piston moves, it gradually compresses the alternately spaced internally and externally splined clutch discs, referred to above. At the completion of the shift the engine is turning at the same speed as the output or propeller shaft.

Now that the output shaft is turning faster than the turbine shaft the roller clutch is "overrunning" or as is better known "free wheeling." Although the vehicle is now being driven in a mechanical direct drive with the engine the shift cycle is not completed. If the direct-shift cycle was stopped at this point the transmission would not only be in direct drive, but also in partial hydraulic drive since the front clutch connecting the engine to the converter pump is still engaged. This condition cannot continue, for although the converter is not driving the vehicle, it is absorbing a large amount of horsepower; actually it is acting as a brake on the engine. For this reason the front clutch must be disengaged after the direct shift is completed. This is accomplished in the following manner:

A pressure-sensitive, normally open, electric switch is located in the oil passage to the direct-drive piston. When the pressure in this line reaches approximately 40 psi, which is ample to engage the direct clutch, the switch contact is closed completing a circuit to the solenoid-operated valve that controls the converter clutch operating cylinder. As the solenoid valve opens, air or oil, depending on the unit model, moves the release-cylinder piston which in turn disengages the converter front clutch.

The propeller shaft is now turning the output shaft of the transmission. However the converter turbine cannot be driven from the output shaft because the roller clutch will overrun or free wheel when driven from the back. This is the reason referred to above for using this type of clutch as a connector between the hydraulic and mechanical sections. With the front clutch released, and the turbine disconnected from the output shaft by the free wheeling clutch, it is immediately apparent that the entire hydraulic section, pump and turbine assemblies, come to a complete stop. The drive is now directly from the engine to the through shaft which is connected to the output shaft by the engaged multiple-disc clutch, as shown in the lower half of Fig. 1. The upper half of this figure shows the power path when operating in the hydraulic-drive range prior to the direct-drive-shift cycle. Conversely as the vehicle speed is reduced, either forcibly, as when ascending a hill, or when slowing down for a corner the unit will automatically shift from direct drive back to hydraulic drive. These shifts both up and down are accomplished smoothly without interrupting the flow of power to the wheels.

Pumping operation

So far we have covered the operation of the vehicle on its way to a hypothetical fire. Let us now assume that we have arrived at the fire and must prepare to pump water. Since the Underwriters have made it mandatory that the main pump be connected directly to the engine, our problem is to engage the direct-drive clutch when the vehicle is not moving. This is accomplished quite simply in conjunction with the normal operation of the truck. As the manual shift is made from road gear to pumping gear, a switch contact is also made which completes a circuit to the direct-drive solenoid valve which in turn engages the direct-drive clutch. This switch fulfills the same purpose when engaging the water pump as the governor does when traveling in road gear. The power flow to the pump is now directly from the engine. The converter clutch is released and the converter pump and turbine are at rest.

Power take-off

The Turbo-Matic transmission, as used in fire apparatus, is equipped with two power take-off apertures. One is for a conventional S.A.E. six-bolt P.T.O. rated at 25 horsepower while the other takes the new heavy-duty eight-bolt unit with a capacity of 50 hp; these ratings are based upon a P.T.O. speed of 1000 rpm. Both of these P.T.O.'s operate in the converter range and may be used to drive auxiliary pumps. If the road gear is engaged and the vehicle is being operated in converter range, one or both of the P.T.O.'s can be used simultaneously, which permits an auxiliary pump driven by a P.T.O. to be operated while the truck is moving.

This feature is particularly useful for fighting grass fires. Of course, the P.T.O.'s can also be used without moving the truck. In this case the converter manual control would be moved to the neutral position.

Conclusions

The advantages of a converter equipped fire truck may be summarized as follows:

1. Simplicity of operation: (a) Controlled like a passenger car with an automatic transmission. Anybody who can drive a modern car can drive a truck equipped in this manner; (b) Feet are used only on throttle and brake, no clutch pedal or clutch disc replacement due to misuse; (c) Hands can remain on steering wheel at all times; (d) No gear shift pattern to distract the driver's attention.

2. Fast smooth acceleration: (a) Full power to the wheels at all times —no interruption for gear shifting; (b) No matter how fast the throttle is opened or brakes applied, the engine cannot be stalled. □□

Blast at AEC Plant Fatal to Ensign

Ensign John E. McGowan of The Bronx, New York, died several days after he was burned in an explosion at the West Milton Atomic Power Laboratory near Ballston Spa, N. Y., on October 31. Three other Navy men were burned in the explosion which wrecked part of the land prototype of the USS submarine Triton's nuclear propulsion plant.

The Atomic Energy Commission's naval reactors operations office said the propulsion plant was not operating at the time and the radioactive portion of the plant was not involved nor was any radioactivity released.

It explained that "a high-pressure air flask which supplies air to operate valves of the steam part of the propulsion plant exploded." The fire that followed the explosion was brought under control in a half hour by the test site's fire department and area fire companies, and was "out" in 45 minutes to an hour. Any possibility of sabotage was discounted.

The Beginnings Of American Fire Service Literature

The author seated at his desk in the fire department library. The library index now lists more than 200,000 entries which cross-reference the more than 10,000 cataloged volumes, pamphlets, reports and periodicals

By CLARENCE E. MEEK*

IN 1878, Clifford Thomson, of New York, read a paper at the convention of the National Association of Fire Engineers, in Cleveland, on the subject of "The Literature of the Fire Service." He used the title in a negative and somewhat facetious sense, for, as he told the assembled chiefs, "Our Service has no literature, no written history, no scientific treatises, no text books, no manuals of drills, no standards of rules and regulations. While in Europe there have been between 200 and 300 persons who have contributed substantial works to the literature of the fire service, in this country we have none."

In the course of Mr. Thomson's "needling" of the chief engineers, he referred to the 233 books, pamphlets and essays listed in a bibliography which he had prepared of English, German and French works—"a fire literature rich in research and accumulated facts and experiences; able works written by practical firemen of the Old Countries upon the Fire Service in general; essays and learned papers read before the various scientific associations of Europe." We have a copy of this bibliography in the New York Fire Department Library and through the most fortunate circumstance of receiving the Brentano fire collection in 1954, we have many of the listed books and documents.

Simon Brentano was the wealthy owner of bookstores in New York, Berlin and Paris; a close friend of Dr. Harry M. Archer and Chief of Department Hugh Bonner, and an enthusiastic fire buff whose hobby and ambition was the collecting of all available fire service literature. How successful he was is indicated by the number of books—printed as far back as the early 18th Century—now in the Brentano collection of the department library at the New York Fire College. The whole fire service is indebted to the heirs of Simon Brentano for the gift of these 200 books and bound documents, which, we understand, represent only part of the collection. Unfortunately, many of the books were lost or destroyed during the half-century which passed between Mr. Brentano's death and the disposition of his libraries.

Early hydraulic experiments

At the time of Mr. Thomson's address, there was a published American work by George A. Ellis, entitled "Fire Streams," reporting the results of a series of experiments made by Mr. Ellis and Chief A. P. Leshure, of Springfield, Mass., to ascertain the flow of water and the friction losses in water mains, hose and nozzles. This work was the first attempt to develop fire flow and friction loss tables and might be called the beginning of our technical literature. Mr. Thomson's statement that there was no American fire service literature was approximately correct as regards technical works, but at that time there were several books of a historical character, particularly several hurriedly written stories of the Boston and Chicago conflagrations of 1871 and 1872.

The intervening 80 years have, after a slow and little-encouraged beginning, produced the extensive writings of many dedicated men who have been the builders of the foundation on which the fire service has created its educational and training programs and grown to full professional stature.

Probably the first work which might be called an American fire service book was titled "The Fireman—The Fire Departments of the United States —With a Full Account of All Large Fires," written by David A. Dana, of the Boston Fire Department, and published in 1858 by James French & Co. This 365-page volume, well illustrated with steel engravings, and beautifully bound, was priced at $1.00! Our copy, the gift of Harry Belknap, is a highly prized part of the Department Library. In the first chapter of "The Firemen," Mr. Dana wrote, "It is a singular fact that no work has been published in the United States in relation to this arm of our public safety—the fire department. . . . Why is this?"

* Librarian Clarence E. Meek was promoted to the honorary rank of deputy chief on December 21. In making the announcement, Fire Commissioner Edward F. Cavanagh, Jr. said the promotion was effective October 1.

At about the time of the publication of Mr. Dana's book another citizen of Boston—Joseph Bird—wrote a pamphlet which was published under the title of "Fires and Fire Systems." Mr. Bird, who was described by a contemporary as "an enthusiastic investigator of the causes of fires and means of extinction, and possesses more theoretical and practical knowledge of the subject than any person whom we have ever met," advocated the placing of "small engines," or Johnson pumps (comparable in size to hand extinguishers) in every building, the citizens being trained in their use and formed into a "second fire brigade." In the event of a fire, the "second brigade" was to respond and assist the "first brigade"—the regular fire companies. His theory was that the "second brigade" would put out practically all fires before the "first brigade" could get its apparatus into action.

In 1873, Mr. Bird published a book called "Protection Against Fire" which elaborated on his earlier treatise and projected other ideas which must have seemed fantastic at the time, but which showed Mr. Bird to be a man who was doing some original thinking. One of his ideas was the smothering of interior fires by flooding with steam from the steam fire engines, instead of water, thus eliminating the cause of greatest loss — water damage. He didn't say anything about what might happen to any persons inside the burning building.

Fire research activities

With the organization of the National Association of Fire Engineers (now the I.A.F.C.) at Baltimore in 1873 the fire service was started on the road to professional standing. The minutes of all of the conventions, beginning with the 1873 organization meeting, reported on topic discussions which influenced the future research activities and thinking of the chiefs and underwriters. Three officials of the National Board of Fire Underwriters were at the 1873 convention and the printed proceedings of subsequent meetings show the attendance of Underwriters' representatives, and their participation in the discussions.

As an example of the studies undertaken, "Spontaneous Combustion" was the subject of intensive research by a committee of chiefs and Underwriters' engineers. Their report submitted to the Fire Engineers Association in 1879, with supplements in 1880, 1881 and 1882, is a treatise so complete that it justifies a rating as technical fire literature. As a study of dust explosions, it is a pioneer work of considerable interest and value.

A special committee of chiefs and insurance engineers appointed in 1882 worked for two years in preparing a suggested "Code of Building Laws," a document which had much influence in framing the building codes of cities.

Freeman and fire streams

The work of George A. Ellis and Chief A. P. Leshure on "Fire Streams" was followed in the 1880's by the studies and experiments of John R. Freeman, president of the American Society of Mechanical Engineers. The fundamental data now incorporated in fire stream and friction loss tables were developed in a series of extensive investigations by Mr. Freeman in 1888 and 1889 and reported in the Transactions of the American Society of Civil Engineers, Volumes XXI and XXIV. The tables used in "Fire Engine Tests and Fire Stream Tables" are mostly based on the earlier works of Mr. Freeman and on tests made by him in 1909 in cooperation with the New York Fire Department and Department of Water Supply.

The comparatively few American works on fire prevention and protection written during the first half century of our Fire Service literature—roughly the years up to the beginning of World War I and the period with which this present article is concerned —were largely the efforts of fire insurance engineers. The practice of dividing individual risks among the insurance companies developed quite rapidly after the experiences of Chicago's Great Fire and made necessary the standardizing of inspection procedures and hazard ratings. This brought about the organization of rating agencies and the development of standard codes and practices—the basis of most of the earlier technical literature of the fire service.

One of the first books of this category was "The Fire Protection of Mills," by C. J. H. Woodbury, inspector of Factory Mutual Fire Insurance Companies, published in 1882. An earlier and less elaborate study of this same subject had been written by John L. Hayes and printed in the Quarterly Bulletin of the National Association of Wool Manufacturers under the title of "Fires in Woolen Mills, their Causes and Means of Prevention and Extinction." In Mr. Woodbury's work we find the first exposition of protection of industrial plants by coverage with sprinkler systems. It is interesting to note that the early systems used perforated pipes and that the first installation on record was made in this country in 1852. Gorham Dana's 500-page volume "Automatic Sprinkler Protection" was published in 1914 and was a complete treatise on the types of sprinkler and supervisory systems in use at that time.

The organization of the National Fire Protection Association in 1896 was a movement which accelerated systematic study, research and development of engineering standards and codes. It was also in 1896 that Everett U. Crosby, an insurance engineer and son of Uberto C. Crosby, first president of the N.F.P.A., published the original edition of the "Handbook of Fire Protection," the first complete fire protection handbook in the English language. In preparing succeeding editions Mr. Crosby had the assistance of Henry A. Fiske, and later H. Walter Forster was associated with Messrs. Crosby and Fiske in revising and compiling the Handbook, the publication of which was taken over by the National Fire Protection Association in 1935. The work of Crosby-Fiske-Forster is still an outstanding contribution to the now imposing collection of American Fire Service literature. The encouragement and facilities offered by the NFPA have been responsible for a number of books which probably would not otherwise have been published.

Engineering texts

A work sponsored by insurance interests which, through successive editions, has been a standard reference manual with fire protection engineers, is "Fire Prevention and Protection," first published by the Spectator Company in 1900. The third edition, 1916, was revised by A. C. Hutson, assistant chief engineer of the NBFU, whose activities were for so many years closely allied with the educational and technical programs of the fire service.

Another outstanding technical work introduced in 1900 was Herbert Ingle's "Chemistry of Fire and Fire Prevention." Mr. Ingle was an Englishman but his text book was published in the United States by Spon & Chamberlain, and can be claimed as American by adoption. This reference work is in much demand in our Library.

The "Fire Insurance Engineers Handbook," by William D. Matthews, printed in 1916, was a revision of the "Manual of Inspection," first published in 1908, Another book of the first decade of the century, which should be mentioned, was "Fire Insurance and How to Build," by Francis Cruger Moore. As their titles indicate, these manuals were prepared primarily for the insurance engineer and inspector, but are also valuable to the fire service officer.

Continued on page 60

Typical explosion (above) during burn-out of fire. Water flowing from abandoned hose line caused many similar eruptions which scattered pieces of burning metal up to 150 feet from the scene

Pall of smoke (at left) from fierce fire rose hundreds of feet in the air and was visible for many miles during height of the blaze

Magnesium Creates Spectacular Freight Car Fire

By **C. P. BURGER,** *Assistant Chief*
Spokane, Wash., Fire Department

Remains of freight car and magnesium cargo. The white residue is magnesium oxide and was contained in a pile about 75 feet long and up to 3 feet high

Largest remaining portion of the railroad car was on the windward side of the fire. Heavy railroad trucks and axles were partially melted by the fire

Editor's Note: The following report of an unusual fire was supplied through the courtesy of Chief W. A. Dunham, Spokane, Wash., Fire Department. Although the fire was outside of Chief Dunham's jurisdiction, the Spokane department was called on for advice and assistance, and this account was written by the chief who responded to the alarm.

A WELDER'S HELPER directed a stream of water into a freight car standing in the Great Northern Railroad yards at Hillyard, Wash., on October 29 last, and was greatly surprised when a minor explosion occurred. Before the fire burned out over five hours later, the box car and its cargo were reduced to a heap of magnesium oxide and a few identifiable parts of the original railroad car.

The freight car was loaded with 50,000 pounds of magnesium sheet metal rolled in coils approximately 3 feet high and 3 feet in diameter. The rolls were stacked two high in the car. The steel, wood-lined freight car was shipped October 16th from the Dow Chemical Corporation, East St. Louis, to a firm in Denver, Colo. Somehow the car strayed and wound up in the Great Northern freight yards in Hillyard, a suburb of Spokane, with a bent grab iron.

Strict railway regulations require repairs be made before a car can proceed, and at about 9:30 a.m., October 29th, the car was switched to a repair track. A welder and his helper, thinking the car was empty, proceeded to heat the grab iron, when smoke was discovered coming out of the crevices. A side door was partially opened and the car was found to contain what was thought to be aluminum in coiled rolls.

Within 10 feet of the car was a 2-inch rubber fire hose line stored in an underground vault. The hose was immediately taken out and the valve opened. The welder's helper got up in the car and directed water toward the corner where the welding had been done. At once a minor explosion occurred, and the workman got out fast, leaving the hose running.

A few seconds later, a more violent explosion took place, blowing out both side doors of the car against freight cars on adjoining tracks. Within a few minutes, the entire car was involved in fire and an alarm was turned in to the yard office.

Switch crews were ordered to isolate the burning car by removing other cars attached to each end. Additional crews pulled away cars on adjoining tracks. The smoking and scorched cars were wet down by employees, while being taken away. Finally, a cleared area, 100 feet on each side and several hundred feet on each end was made.

No further fire fighting after the initial attempt was made on the burning car, and it was permitted to burn out. The molten magnesium burned with an intense white flame, making it difficult to watch with the naked eye. A huge cloud of greyish white smoke drifted over the area on the leeward side. The day was clear, and the smoke rose high in the air and was of no hazard to persons in the neighborhood.

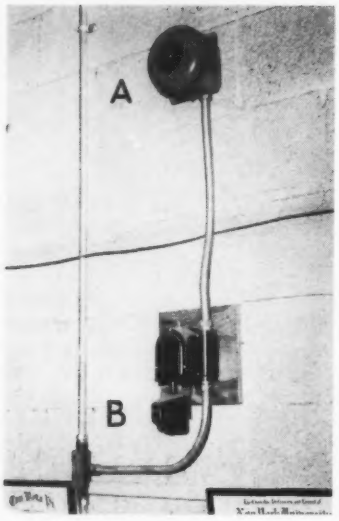
The major fire burned for a period of over five hours, and no attempt at clean-up was made for several days. A 75-foot-long pile of white magnesium oxide, perhaps 3 feet high, along with a few parts of the steel railway car, were all that were left. On one end, even the heavy box car wheels had melted.

An interesting part of this fire was that the repair track is on slightly lower ground, and water from the burned 2-inch line kept flowing into the burning molten mass causing explosions every few seconds. These eruptions would hurl small chunks of molten magnesium high into the air, some landing 150 feet away. Workmen were kept busy patrolling the tops of freight cars in the near vicinity to guard against fire spread from this cause.

The abandoned hose line supplying water to the burning magnesium could not be shut off except at the pump house. Other lines on the same main were being used in wetting down adjoining freight cars and yard buildings, and it was thought best to have the explosions than not have any water.

The Great Northern shops and switch yards are located outside the jurisdiction of the Spokane Fire Department. The installation has its own water system and employees are trained in fire fighting. Because of the number of Spokane people earning their living at the shops and yards, one engine company and battalion chief are dispatched when requested, and the battalion chief can order more apparatus if needed. This fire had been burning at least a half hour when railway officials notified the Spokane department that a carload of magnesium was burning in the yards, and a ladder company was dispatched along with the regular assignment. Upon arrival it was found that the steel freight car had melted, and the huge mass was burning on the ground. The nearest city hydrant was 1,500 feet distant, and a line was laid with pumper hookup in case of fire extension. This line was not needed or used.

It is the opinion of fire department and railway officials that no amount of water as provided by the local water mains would extinguish this fire without causing considerable more fireworks and danger to fire fighters. Luckily there were no injuries when the side doors of the car blew out, and the only extensions were the scorched sides of the adjoining freight cars before they could be removed from the fire area. □□



Shown at left are two bells —alarm bell (a) and a trouble bell (b). Larger alarm bells sound when the system detects fire, or when sprinklers operate. The trouble bell, conical in shape, sounds a separate distinctive signal when a wiring fault is discovered

Fire detectors and sprinkler water flow supervision supplemented by manual pull boxes notify municipal fire department in case of fire in Connecticut industry

Automatic Alarm System Fills Gaps in Plant Protection

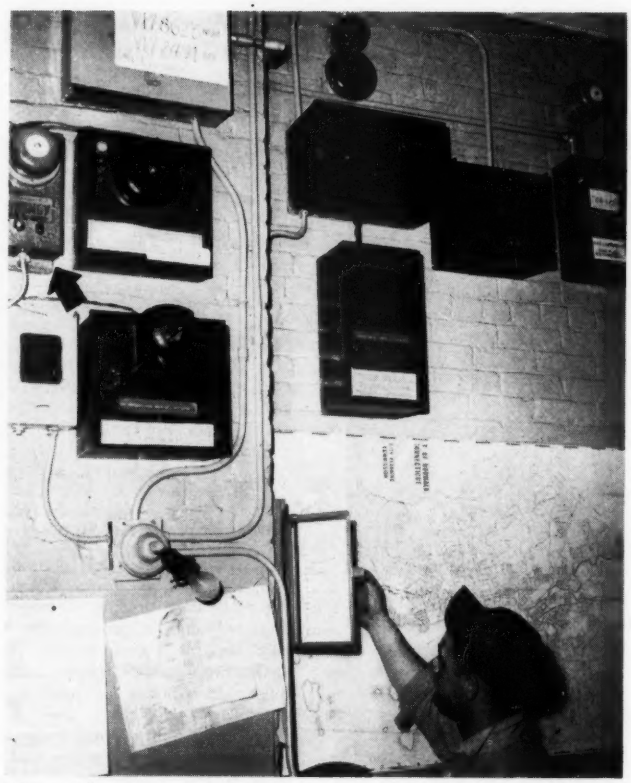
ON A SPECIAL PANELBOARD in the South Norwalk, Conn., fire station are posted the names of prominent local manufacturing companies. Each name on the "fireboard" is quiet evidence that a nearby plant has installed a city-connected, automatic fire detection system.

Norwalk, like many other cities, has had industrial plants come into what are still semiresidential areas. To protect the new plants and surrounding homes, many companies have recognized the wisdom of installing proprietary fire protection systems.

Stretching between each of the protected plants and the municipal firehouse are pairs of leased telephone lines—key links in Norwalk's industrial fire protection chain. At one end, these are tied to the fireboard control panel. A good example of what's at the other end of the line is the installation at the Burndy Corp.

Before installing its system, Burndy was protected, partially, by sprinklers. These did not cover offices, corridors or the company library which, it was felt, could not be sprinklered because of the danger of accidental water damage to its irreplaceable contents. To protect these buildings, and at the same time, to sup-

The Burndy library, a converted residence and one of the finest of its type in the nation, is protected in many ways. Left: an automatic rate-of-rise detector is located in a room containing irreplaceable books and periodicals. Right: a precious antique static electricity generator is also protected by an automatic detector



View of firehouse control panel for industrial plants in the Norwalk, Conn., area. The Burndy unit can be seen at upper left

An engineer tests Burndy's system. It detects fire automatically and operates on 24-volt current. Stand-by batteries are located behind the cinder-block wall

plement existing sprinkler coverage, Burndy installed an automatic fire alarm system and tied sprinkler flow switches to it. This arrangement will not only detect, locate and warn of fire, but will help extinguish it too—24 hours a day, every day in the year.

Burndy occupies six buildings spread over some 11 acres. The varying nature of the buildings to be protected—the library (a converted residence), two office structures, factory buildings and a warehouse—called for two types of fire detection stations, automatic and manual.

For example, the library's low level of traffic made automatic detection desirable, while manual pullboxes are considered adequate for corridors and offices, since they are occupied most of the day.

After consulting with the Edwards Company, Inc., also located in Norwalk, Burndy decided to install a system known as type-AMVAD (Automatic-Manual-Vibrating bell-Ac-Dc).

Basically, the system detects fire and locates it according to zone. When fire is detected anywhere, it sounds a general evacuation alarm, indicates the fire zone, and at the same time, alerts the city fire department. A switch on the control panel allows for periodic testing of the system without sounding a municipal alarm. The system operates on nonhazardous low voltage and requires no conduit or armored-cable wiring.

Two types of automatic detectors are used. One is set for fixed temperature, either 136° F. or 190°F., and has a U. L. rating of 400 square feet (20 x 20 feet). The second combines a rate-of-rise feature with fixed temperature and protects up to 2,500 square feet (50 x 50 feet).

Burndy's fire detection stations are wired in two zones, one corresponding to the library, and the second to the warehouse and two office buildings. Zones are composed of both automatic and manual stations, and each is then connected to associated signal lamps on a master control panel, located in the executive office building.

To integrate the sprinklers, flow switches in the main sprinkler valves of each of the four remaining buildings were wired into the system just as detectors were. Switches are normally in open position. If a sprinkler head should be set off by fire, or if a defective sprinkler goes off accidentally, the resulting flow of water (1) closes the switch, (2) sends a signal to an associated lamp on the control unit, and (3) causes all alarm signals to ring.

Under normal conditions, the six zone lamps on the panel, two wired for fire stations and four wired for sprinklers, are lighted. Upon operation of any automatic detector, pressure switch or pull box, the associated zone lamp goes out and a common alarm lamp lights. Alarm bells sound continuously until the system is reset.

AMVAD is electrically supervised, so that if a fault in wiring or components should occur, a trouble bell sounds and the system switches automatically to stand-by, trickle-charged batteries. If complete power failure occurs, the batteries will maintain the system for up to 24 hours. □□

Upper Merion firemen check interior of the Burdett acetylene plant after fire. The cylinders in the background, located near the loading platform, emitted acetylene gas when heat from flames forced open relief valves—*Norristown Times-Herald photo*

Carbide and Acetylene Complicate Plant Blaze

Fire fighters of Upper Merion Township, Pa., were confronted with a hazardous problem on September 28 last, when a flash fire occurred in the Burdett Oxygen Co. acetylene plant on Yerkes Road, Hughes Park. At 5:00 p.m., an employee of the company, Robert Hanson, was working alone in the northwest section of the building and a company truck driver was unloading gas cylinders onto the loading platform.

Suddenly there was a muffled explosion and fire flashed through the interior. Hanson turned off several valves on the rack line, warned the truck driver on the loading platform and then ran to a nearby house and phoned an alarm to the township police dispatcher. Responding were Swedesburg Fire Company with a 750-gpm pumper, a 500-gpm pumper and a 1,000-gallon tanker under Chief Watson Doumurat; Swedeland Fire Company under Chief Robert King with two pumpers; and King of Prussia Fire Company under Chief Lewis Granger with two 750-gpm pumpers, two tankers and a dry chemical truck. George Clay Fire Company of West Conshohocken responded under the Montgomery County Fire Chiefs' Mutual Aid Plan with two pumpers, a rescue squad and an ambulance. All companies stretched lines from nearby hydrants and attacked the fire.

Because of a storage of carbide, water had to be carefully employed. Caution by firemen and the use of safety equipment on cylinders supervised by Hanson and Fred Pichon, plant superintendent, prevented what could have been a disastrous explosion. The heat of the fire expanded the gas in 100 cylinders located in the plant. A loud hissing noise was heard a half-mile away from the plant as the gas escaped through safety valves, keeping uneasy firemen on edge by this development. On the racks where the fire began, there were cylinders that contained approximately 125 cubic feet of acetylene, which plant officials described as eight times more powerful than TNT. Seventy feet away was a large tank with 250 cubic feet of acetylene. Despite this mental harrassment, the blaze was quickly extinguished.

The fire was generally believed to have been caused by a spark igniting the acetylene gas which escaped from the cylinders being filled at the time. This was confirmed in an investigation by Upper Merion Fire Marshal Michael Byus and his assistants. ***Ed Dybicz***

Home Inspection Folder

As an aid to fire departments conducting home inspection programs, the National Board of Fire Underwriters has prepared a new folder which uniformed firemen may leave with a householder after inspecting the premises. It thanks the householder for cooperating with the local fire department in its home inspection program and underlines safety tips which, if followed, can reduce the possibility of fire. The pamphlet also contains reminders for keeping the home fire safe subsequent to the inspection and it serves as a good will medium. Space is provided on the front for the fire department to stamp its own identification.

The new pamphlet tends to establish a personal relationship between the fire department and the community. Thus far this year, 15,000,000 homes in the United States have been inspected by uniformed firemen with approximately 50 per cent of the fire departments in the nation participating in the work.

Fire Marshals Score Television

Peter Lynch, chief fire marshal of Nassau County, N. Y., and Martin Scott, chief fire marshal of New York City, criticized television programming at a forum on "The Problem of Arson," sponsored by the Manhattan College Institute for Forensic Research for 200 members of the Metropolitan Law Enforcement Conference, at Manhattan College on last November 7.

Marshal Lynch said that for all the good it has done, "television is the worst thing that ever happened to our children." He mentioned "death, suffering, sadism, and brutality" as subjects which are treated with callous indifference, and that judges, lawyers and law enforcement officers are too often portrayed as "dishonest, incompetent and stupid."

Show how to set fires

Marshal Scott reported that he has seen television programs which actually depict how an arsonist sets his fires. He deplored such a program as "shocking and horrible," emphasizing that it is against the public interest to show detailed descriptions of how a crime is committed.

Queens County Court Judge Peter T. Farrell told the 200 police and fire officials at the forum that, "although eye witnesses to arson crimes are almost never present, it is becoming increasingly difficult for juries to accept circumstantial evidence in arson cases. Circumstantial evidence is often better than direct evidence, but the public is being conditioned to rejecting such evidence by outside influences." He cited television crime programs as a prime example of conditioning public opinion in this regard.

Nassau County records show an average of at least one out of every 8.5 fires that have been investigated during the past 20 years was set by one or more children, according to Marshal Lynch. He noted that the type of fire setting is increasing in seriousness and that children are becoming extremely vicious.

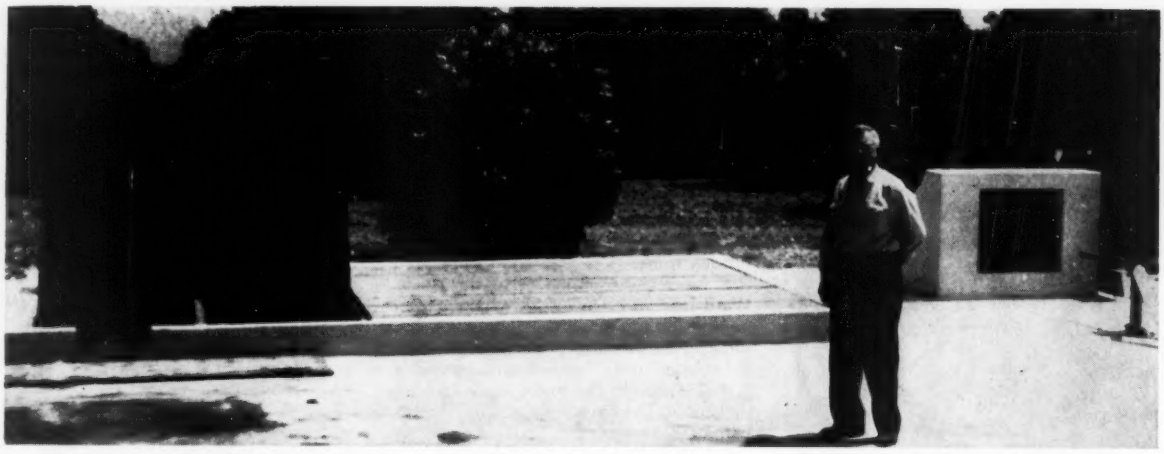
"Unfortunately, there is a tendency on the part of many police and firemen to pay little attention to some fire that 'the kids set.' Unless every juvenile fire is given just as careful and thorough an investigation as an adult-set fire, the kids are going on to bigger fires."

Marshal Lynch contended that newspapers should be permitted to publish the names of any children arrested in connection with fires or any other illegal act. "People are entitled to know the type of children living near them so that they may protect themselves."

He also urged stricter treatment of juvenile offenders, financial responsibility on the part of parents for the acts of their children, and the right of school authorities to physically discipline pupils when necessary.

New York City Fire Commissioner Edward F. Cavanagh, Jr., was moderator of the morning session, and Brendan Battle of the National Board of Fire Underwriters, moderated the afternoon session.

short cuts and gadgets



Detail of discharge housing and nozzle plate stand. A bolted clamp holds the siamese in place—*all photos and drawings by H. L. Metcalfe*

Ventura County Pump Test Pit

A unique training and test facility at the Santa Paula, Calif., headquarters of the Ventura County Fire Department, is the pumping pit. The testing set up was built by firemen stationed at the headquarters under the direction of Deputy Chief James Achilles after plans by H. L. Metcalfe of Braintree, Mass.

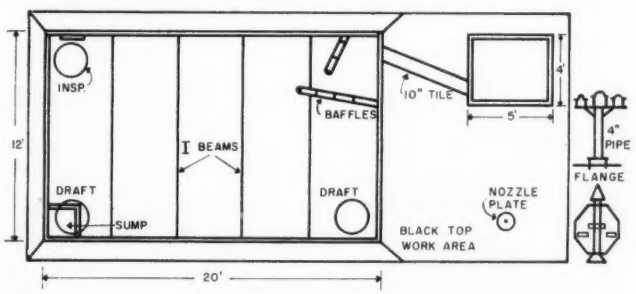
The pit was designed for Chief William Haggard by Mr. Metcalfe to eliminate the shortcomings encountered by him in the many pits at which he has run pumper tests in the past. It is built to prevent aeration of the water at the suction point and provide a very low flow velocity.

Pumper test pit built by firemen at Ventura County headquarters. Deputy Chief James Achilles, in charge of the construction is shown. The pit cost approximately $1,800

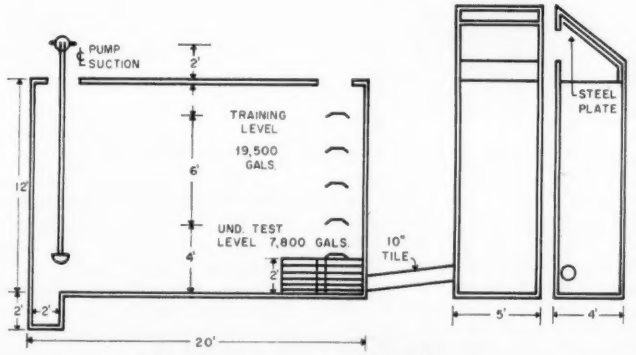
Mr. Metcalfe states the pit will handle a 1,500 gpm pumper in summer weather without undue temperature rise.

The pit can be built entirely of reinforced concrete or of concrete block with waterproofing and wood top deck where economy is desired. If a wood top is used the tank sides are raised 12 inches above ground level. Departments now equipped with pits which have a venturi-type discharge housing can convert to this type of cooling and deaeration chamber at low cost by simply following the sketch.

Water capacity of the pit is 19,500 gallons when filled to a 4-foot training level. At the 10-foot Underwriters test level it contains 7,800 gallons. A limited number of the photos and sketches shown here are available from the designer without charge to interested departments.



Top view of test pit



Section view of pit and discharge housing

WHAT'S NEW

Among the Manufacturers

- products
- processes
- personalities

S & S Emergency Ambulance

The Hess and Eisenhardt Co., Cincinnati, Ohio, recently delivered a new S & S four-patient ambulance equipped for wide-range emergency services to the Wellsboro, Pa., Firemen's Ambulance Association, Inc. Some of the emergency rescue tools are mounted on the rear of the front seat. The seat folds forward, making the tools instantly available.

New Falcon Alarm

A sight glass has been added to the automatic Freon-powered fire alarm manufactured by Falcon Alarm Co., 243 Broad Street, Summit, N. J. The level of the colored liquefied gas can be checked at a glance to be sure the unit is fully charged. This is said to eliminate the UL requirement that earlier models be weighed at six-month intervals. The new "S" series detectors are available with temperature ratings of either 136° F or 174° F.

New York Awards Apparatus Contracts

The New York City Department of Purchase recently awarded contracts to American-LaFrance for thirteen 100-foot aerial ladder-water tower trucks, and to International-Harvester for one floodlight truck, one squad truck and one fire prevention truck.

A contract was previously awarded to Ward-LaFrance for twelve 1,000-gpm pumpers and four 750-gpm pumpers. Bids for the aerials, pumpers and floodlight truck were opened on September 3, 1959. Bids on the squad truck and fire prevention truck were opened in November, 1958.

Fire-Resistant Paper

Minnesota Mining and Manufacturing Co., 900 Bush Avenue, St. Paul 6, Minn., has announced a new line of document and insulation papers which are claimed to be fire resistant. Called "Crystal M," they are available as 100 per cent synthetic mica paper or in two types which contain fibers introduced during manufacture. The new high-temperature material is also available in block and powder form for thermal insulation purposes.

New "Quick Call" Decoder

Motorola Communications and Industrial Electronics Division, 4501 West Augusta Boulevard, Chicago 51, Ill., has introduced a transistorized "Quik Call" selective signaling decoder for use with its mobile two-way radios. The use of transistors is said to provide compactness and low battery drain with greater reliability. Motorola also has expanded the capacity of its "Quik Call" signaling system. By adding two new sets of tone-generating and decoding components, the number of possible code combinations is said to have been increased to 4,300.

Nullifire Additive

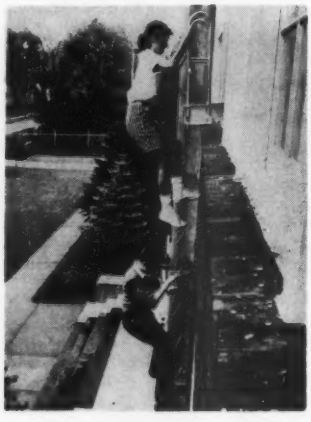
A new chemical emulsifier compound, "Nullifire," for use in extinguishing gasoline and fuel oil fires has been developed by the Daniel Chemical Corporation, Rockland, Mass. It is claimed that tests have demonstrated that a 2-per-cent solution, introduced through an eductor into a water stream, extinguished fuel oil fires in one-third the time of water fog and faster than some other chemical methods. It is said the use of the chemical appreciably reduces the hazard of reignition. Another advantage claimed is that when spills of fuel oil and gasoline are sprayed with a 4 to 6-per-cent solution of Nullifire, the possibility of their ignition is reduced and in many instances completely eliminated.

It is expected the new development will be useful at airports and in helping control and extinguish petroleum fuel fires in harbors or on tankers. It is said to work equally well with sea water or fresh water. Full-scale production is scheduled for February 1960.

Impel-Air Hose Dryer

The Circul-Air Corp., 565 East Milwaukee Avenue, Detroit 2, Mich., is now offering the "Impel-Air" model hose dryer as an addition to its line of products. The new dryer, approved by UL, is said to be equal in performance to the deluxe model but not so streamlined in appearance. It is aimed at the limited budget market.

Marlan Emergency Escape



Marryatt, Lane & Co., Inc., George Washington Plaza, Fort Lee, N. J., manufacturers of escape ladders for the marine industry have announced a new emergency fire escape for schools, institutions and multistory buildings. The self-contained unit mounts on the school room wall beneath a window sill and swings into place over the sill. The chain

ladder falls into place on the outside of the building and a special cleat at the landing permits the bottom rung to be locked in place to prevent ladder swing. The unit is said to be easy to install, requires no maintenance and is easy to handle.

Fire Safety Film

Encyclopaedia Britannica Films, Inc., 202 East 44th Street, New York 17, N. Y., has produced a new fire safety film titled "In Case of Fire." The 16mm color sound film is designed for teaching children of school age some valuable safety practices which may save their lives in case of fire in a school, theatre, or in their own homes. A teacher's guide is provided with the film for instructing pupils.

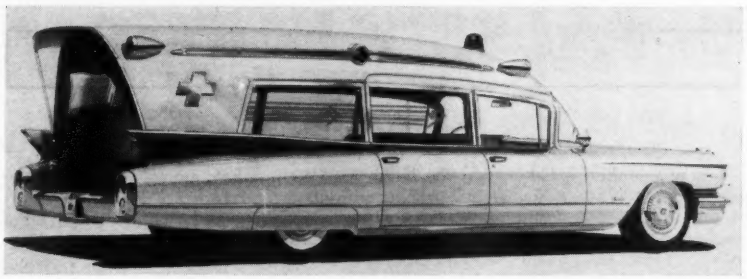
Utility Helicopter

Hiller Aircraft Corp., Palo Alto, Calif., has introduced Model 12E helicopter, said to be available to eligible cities and states with OCDM matching funds. Powered by a 305-hp engine, and equipped with a 250-pound capacity hoist, it may be used for rescue purposes or fitted with spray equipment. The company offers each government purchaser pilot training and use consultation.

G-E System in Arkansas

Installation is under way throughout the State of Arkansas on a Forestry Commission radio communication system designed to help the state's fire fighting operations. When General Electric Company's Communication Products Department of Lynchburg, Va., completes the project, 79 base stations will be located in various parts of the state, many of them in fire towers.

Each 60-watt station will have the capability of talking directly with central control in Little Rock. Two hundred two-way mobile radios will be used in the system.



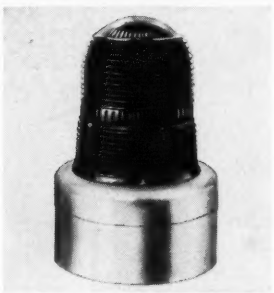
Miller-Meteor Guardian Ambulance

Miller-Meteor Division, Divco-Wayne Corporation, Bellefontaine, Ohio, has introduced the Guardian ambulance, with chassis by Cadillac. In the new model the roof sweeps almost straight back, forming a weather shield over the rear door. The wide car door is said to greatly facilitate loading.

Waukesha ROIline Engine

The Roiline Division, Waukesha Motor Company, Waukesha, Wis., has announced its Model H-884 high-performance fire apparatus engine. The new 884-cubic-inch displacement V-8 design incorporates 5⅜-inch by 4⅞-inch bore and stroke and is claimed to produce a maximum of 330 brake horsepower without accessories. Dual ignition is available.

Magnetic-Base Flasher

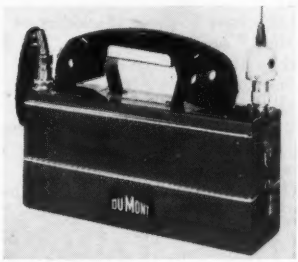


North American Signal Company, 1620 South Canal, Chicago 4, Ill., has announced a new self-contained magnetic-base flasher light, with a 100-candlepower bulb and 360-degree fresnal lens for part-time emergency vehicles. Said to be weatherproof and easily relamped, it is available in 6 or 12 volts with red, amber or blue lens. It is also available for permanent mounting.

IHC Dual Ignition

The motor truck division of International Harvester Company, Chicago, Ill., announces the development of a dual ignition system for V-8 powered International fire truck chassis. It is offered as optional equipment on IHC's V-461 and V-549 gasoline-fueled V-8 engines. A switch permits use of both ignition systems simultaneously, or either one independently. Dual ignition engines are available on International models V-196, V-206, VCO-196 and VCO-206.

New Du Mont Portable



A lightweight, portable two-way FM radio unit has been added to the product line of the Mobile Radio Department of Allen B. Du Mont Laboratories, Inc., 750 Bloomfield Avenue, Clifton, N. J. The new "Portacom" is said to weigh 8 pounds and be less than 12 inches in length.

The unit includes a receiver, one or two-channel transmitter, demountable whip antenna, battery pack, and carrying strap. It is available with loudspeaker and palm microphone and for use on the 25-54 mc frequencies or 144-174 mc band. Power output is claimed in excess of 1 watt on the lower frequencies.

New Plant Opened

Protection Controls, Inc., manufacturers of electrical safety equipment and controls, announces the completion of their new plant at 7317 N. Lawndale Avenue, Skokie, Ill. Robert E. Yates, president, says this expansion represents a three-fold increase in plant area for offices, engineering and assembly facilities.

Plastic Alarm Light Globes

The Welsbach Corp, of New York City has been replacing broken glass fire alarm marker light globes with Tenite butyrate plastic globes in Brooklyn and Queens for the past four years. Mounted on street light poles next to fire alarm

Continued on page 81

FALSE ALARMS

Jimmy's mother, a believer in the be-a-little-gentleman-and-don't-fight school of upbringing, was trying to instill this noble outlook into her pugnacious young son. "Jimmy, when that naughty boy threw stones at you, why didn't you come and tell me instead of throwing them back?"

"What good would that do?" snorted Jimmy. "You can't hit the side of a barn."

A farmer and a professor were sharing a seat on a train. It was getting lonesome, so the farmer started a conversation and they soon became a friendly pair.

"Let's have a game of riddles to pass the time," said the professor. "If I have a riddle that you can't guess, you give me one dollar or vice versa."

"All right," replied the farmer, "but since you are better educated than I am, do you mind if I give you only 50 cents?"

"O.K.," replied the professor, "You go first."

"Well, what animal has three legs walking and two legs flying?"

"I don't know. Here's your dollar. What's the answer?"

"I don't know either. Here's your 50 cents," answered the farmer.

Music Lesson

The Old Timer contracted a bad case of the "Shakes" following a particularly eventful evening on the town. Despite all objections, his wife called the family doctor before she left to do her daily shopping. Upon returning home she confronted her spouse and demanded to know what the doctor had said to him.

Not wishing to tell her the exact details, our crestfallen hero made up a tall story and ended by saying the doctor had diagnosed his ailment as "syncopation." This apparently satisfied her curiosity and she left him alone to carry on her household chores.

A few hours later the old rounder felt much better so he dressed and walked into the living room. Spotting a dictionary he decided to learn what the term he had given his sickness actually meant. One glimpse nearly caused a relapse for he read: "Syncopation — intermittent progress from bar to bar."

Pat came over from the old country and found a job as a janitor in the girl's dormitory of a private college. As part of his equipment he was given a pass key to every room in the building.

A week later the dean met him in the hall and asked Pat why he hadn't called at the office for his wages.

With an astonished look, he replied: "What? You mean I get paid too?

Inflation

Kind lady—"Now, what should a little boy say to a lady who has just given him a nickel for carrying her packages?"

Young modern—"I'm too polite to say, ma'am."

Pete the Probie was having difficulty making ends meet until payday. When a friend asked him how broke he was, Pete answered, "All a pickpocket could get from me is practice."

A rookie reported for work the morning after a holiday, showing signs of a strenuous time. His captain found him hunched over a table with his head in his arms.

"What in heaven's name have you been doing?" asked the officer.

"Fishing through the ice," groaned the suffering probie.

"Fishing through the ice! For what?"

"Olives," was the answer.

Bunk Room Sign

Laugh and the world laughs with you, snore and you sleep alone.

The reason ideas don't last in some heads: They can't stand solitary confinement.

Shoe department manager to customer: "Yes, we have quite a selection of loafers. I'll see if I can get one to wait on you."

The main trouble in resisting temptation is that it may never come again.

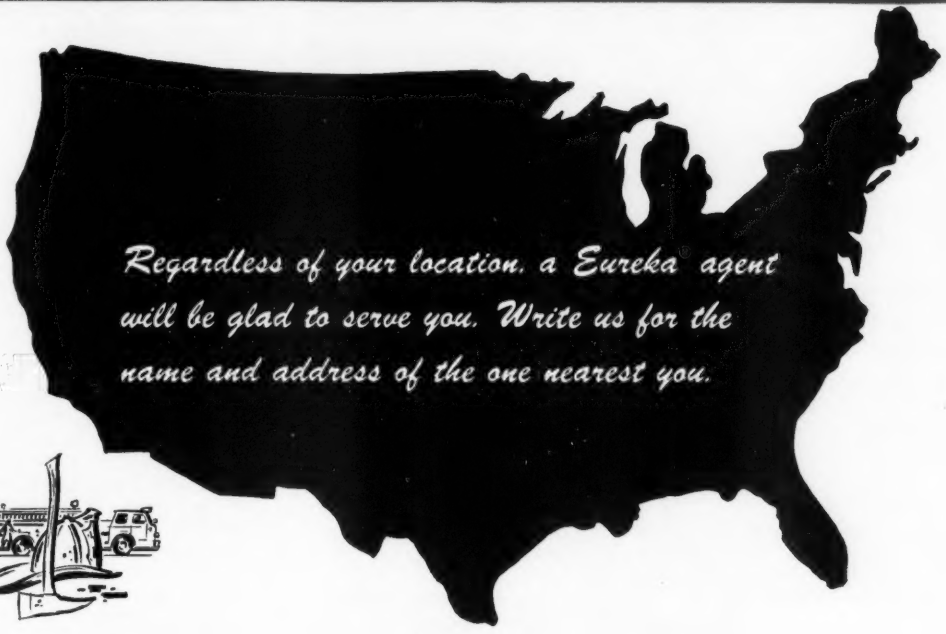
A racetrack is the only place with windows that clean people.

Auctioneer—one who looks forbidding.
Indiana Fire Service Bulletin

"We timed you. It took you 20 minutes to get here!"

PICK YOUR CITY,

TOWN OR VILLAGE


Regardless of your location, a Eureka agent will be glad to serve you. Write us for the name and address of the one nearest you.

Ask your agent to demonstrate that

1. Eureka Multi-Woven 100% Dacron Super Paragon® has a single jacket—the only one on the market – and full 600 lbs. test pressure.

2. Eureka Hose is immune to mildew and rot, and works effectively in frigid weather or damp, tropical weather.

3. Accidentally made holes caused by sharp objects can be plugged up easily and quickly.

EUREKA

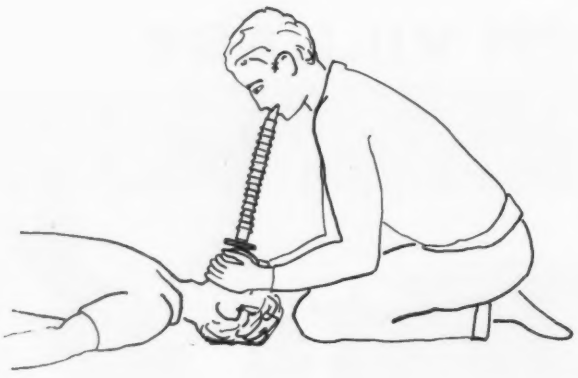
"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Rubber-Lined Fire Hose

1 Market Street **Passaic, New Jersey** *Division of* **United States Rubber**

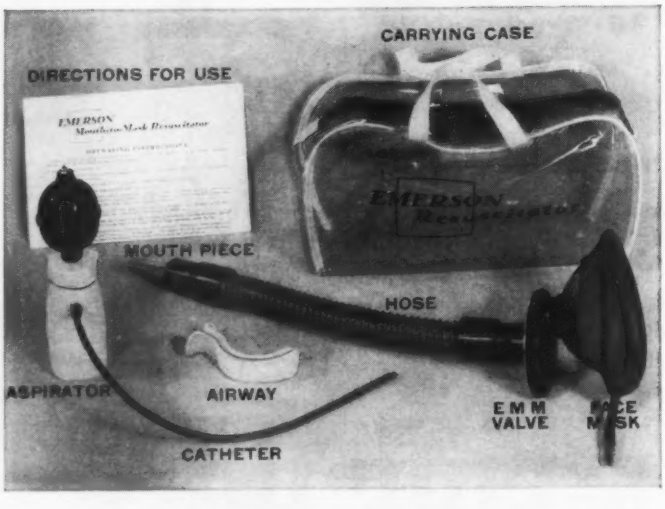
EMERSON Mouth-to-Mask Resuscitator



A small auxiliary unit for every piece of apparatus

Everybody has heard of mouth-to-mouth rescue breathing, but few people want to do it (except in selected cases). The small mouth-to-mask unit eliminates personal contact and increases efficiency, because the mask covers both the nose and mouth. The rescuer is in a better position, and the valve protects him against infectious material from the victim's mouth.

Compact and inexpensive.



J. H. EMERSON CO.
CAMBRIDGE 40, MASSACHUSETTS, U. S. A.

Among the Buffs

By Paul C. Ditzel

COLLECTORS of fire service photographs are invited to exhibit their pictures at a Canadian showing, says R. D. Hedges, AFICD, Box 119, Royal Canadian Air Force, Camp Borden, Ontario. "The exhibition is non-military," says Buff Hedges, "but is designed to tell the story of the fire service with an international flavor. The object of the showing is to make the public aware and to understand that the work of the fire fighter is international."

Photographs will be on display in groups with the name of the department shown. The badge also will be displayed if one can be obtained, says Buff Hedges. Pictures may be of any size, black and white or color. He suggests that information and dates be supplied with each one. The showing is free and many school children have seen it. While Firefan Hedges didn't mention whether the photographs would be returned, I suggest that interested buffs contact him first before sending their prized prints.

Another fireman who is a constant reader of FIRE ENGINEERING is Robert Schierle, 825 Grant Avenue, Westfield, N. J., who is interested in fire photography. Buff Schierle says he has made many buff-friends through this column including Frank Cooper of New York; "Smokestack" Hardy and Bill Snyder of Baltimore; Bill Hasse, Plainfield, N. J.; Fred Aiken, Rhode Island; Bob Freeman, Chicago; Capt. Tom Showers, Los Angeles, and Len Sasher, Virginia. "I was in Chicago last June to visit Bob Freeman of Truck Company 19," says Buff Schierle. He adds that he saw the famous Snorkel in action. "Chicago firemen and especially those assigned to Truck 19 treated me like a king," enthuses Schierle. "I can't say enough good about the Chicago firemen!"

Another fireman-buff, Captain Francis J. Bates of 26 Grove Street, Salem, Mass., would like to hear from firemen and buffs in foreign countries. If any United States buff has compiled such a listing of foreign buffs he'd like to receive a copy.

"I am a collector of foreign fire helmets," explains Captain Bates. "I have 15, plus badges from those departments which could not fulfill my request. Recently I received a high peak, brass eagle-type helmet that was worn by a former chief of my department in 1920." Captain Bates sends along a copy of a feature article that described his helmets. The story in the *Boston Herald* says Buff Bates has put his two-year-old hobby to work to make his fire prevention talks interesting and entertaining.

When called upon to speak to PTA and other groups, he takes along his collection of fire helmets, some antiques. "Fire prevention is sometimes a dry subject to many people," he says, "but the collection of helmets stimulates some interest." Captain Bates said he wrote to Switzerland for a fire helmet and when it arrived

he took it along on his next speaking engagement and thus was he launched on his helmet-fire prevention specialty.

One of his helmets is from Japan and is made of plastic and covered with fire-resistant cloth. A hood is attached to it. "This is for protection against flying embers," said Captain Bates. "I am told that the type of construction of buildings in Japan makes this necessary."

Buff Bates says he writes between 10 and 12 letters a week to fire departments overseas and gets an answer to all his mail. Sometimes helmets are received, sometimes badges. The Ipswitch, England, fire department couldn't send a helmet, but the b'hoys did send a badge. The Brisbane, Australia, department also sent a badge. When Captain Bates wrote to Grace Kelly she sent him a fire helmet from Monaco. One of his prized helmets is a 1912 English helmet which took him nine months of writing to acquire.

"This helmet went through the German blitz during World War II and was sent to me by the chief superintendent of the London Fire Brigade, A.P.L. Sullivan, who later became chief of the British National Fire Service." The helmet is made of laminated cork and fiberglass. Some 20 countries are represented in Buff Bates' collection. An Alaskan helmet was supplied by the Juneau Fire Department.

Boston, Mass., sparks turned out recently when an early morning fire threatened the centuries-old Paul Revere House. Boston firemen, working quickly after an automatic fire detection alarm alerted them, confined the outbreak to the rear kitchen. The house, believed to have been built in 1667, was once the home of Paul Revere.

Deputy Fire Chief Edward J. Gaughan said the fire apparently was caused by a cigarette that had been tossed into a carton of rubbish left in the kitchen by a caterer during a tea the previous afternoon. Harold C. Read, treasurer of the Paul Revere Memorial Association, said none of the contents of the 2½-story frame house was damaged.

That's about "30" for this month. Thanks to all of you buffs, fire fan clubs, and fire departments for your Christmas remembrances. Please continue to send your news notes to me at 4234 Don Diablo Drive, Los Angeles 8, Calif. □□

Blaze Knocks Out Phone Cable And Public Alarm

A general alarm fire in a commercial-residential building early on the morning of December 14 in Westbrook, Conn., burned through the main New York-to-Boston telephone cable, disrupting 150 circuits and knocking out the public fire alarm siren circuit as well as the fire department radio control lines. The blaze apparently started in the cellar of the building on U. S. Route 1 and extended through the roof. The Clinton and Old Saybrook Fire Department assisted the Westbrook department and the $75,000 fire was brought under control in two hours. Telephone service was restored later in the day.

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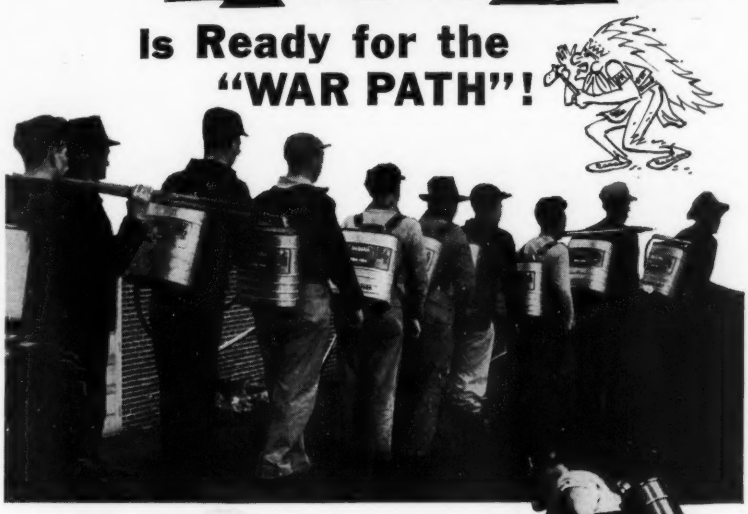

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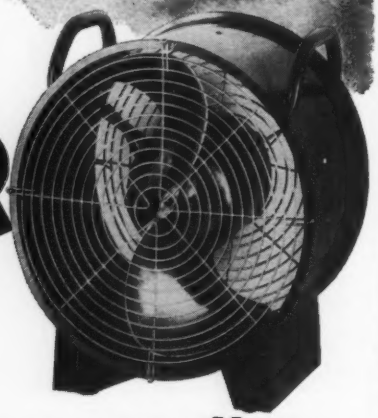

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Questions and Answers

Suction Hose Advantage

Question: **Fire hydrants in our area are equipped with one 4½-inch and two 2½-inch discharge connections. The water flow is generally considered good over the entire system. Would there be any advantage in using a 10-foot length of 2½-inch hard suction from each hydrant connection rather than a single 10-foot length of 4½-inch hard suction to supply a pumper?**

E. K.

Answer: A comparison of friction loss factors shows that hose of 4½-inch diameter has a friction loss advantage of approximately 5.4 times that of two 2½-inch lines of the same length. Based solely upon this consideration it would be much more efficient to use the single large hose to supply a pumper.

Multiple Choice

Question: **As commander of an engine company, you respond to an alarm of fire for a two-story frame dwelling. Your company is first to arrive, and upon sizing up the situation, you observe smoke pouring from several upstairs windows. There no apparent hazard to life; it would be best to: (1) Send in a second alarm; (2) stretch twin lines of 2½-inch hose and attack the fire, or (3) wait for arrival of ladder company.**

G. M.

Answer: Most examinations are based upon local conditions or regulations and in some instances a general answer may not be satisfactory. Due to the narrow choice indicated above it appears (2) is the best answer in this case which is keeping with practices recommended by many departments.

A two-story dwelling is generally considered a "first-alarm" fire in most sections of the country. Therefore the blaze should be attacked immediately without further reference.

The stated information is sketchy but it does indicate no unusual conditions are present. It also gives the impression that additional companies are responding to the location.

Kinds of Foam

Question: **What is the reason for the terms *chemical* and *mechanical* as presently applied to foam extinguishing agents?**

O. M.

Answer: Foam is termed *chemical* or *mechanical* according to the method by which it is produced.

Chemical foam is produced by chemical reaction of aluminum sulfate and sodium bicarbonate in water and foaming agents. The result is a mass of bub-

bles which contain carbon dioxide gas.

Mechanical foam, also called *air foam* is produced by mechanically mixing a liquid foaming compound with water and air. The bubbles formed by this means contain air.

Siamesed Layout

Question: **An engine is pumping through two parallel lines of hose: one, 1000 feet of 3-inch diameter; the other 750 feet of 2½-inch diameter. The two lines are siamesed to a 1½-inch deluge nozzle and the engine is supplying the layout at 150 psi. What is the nozzle pressure?**

S. D.

Answer: First convert the 3-inch hose to the equivalent of 2½-inch using the factor 2.6; then average the lengths of both lines and combine into a single line using the factor 3.6; the answer may then be found with the formula

$$N.P.=E.P.\div(1.1\times KL)$$

1. $1000\div2.6=384.6$ or 385 ft. of 2½-inch
2. Average the lengths:
   $385+750=\frac{1135}{2}=567.5$
3. Combine the two parallel lines of 2½ inch into a single line:
   $567.5\div3.6=157.3$, or 157 feet of 2½-inch hose.
4. Substitute in formula using $K=.505$
   Number of 50 foot lengths $=3.14$
   Then $N.P.=150\div(1.1+.505\times3.14)$
   $N.P.=150\div(1.1+1.586)$
   $N.P.=150\div2.686$
   $N.P.=55.8$ or 56 psi. □□

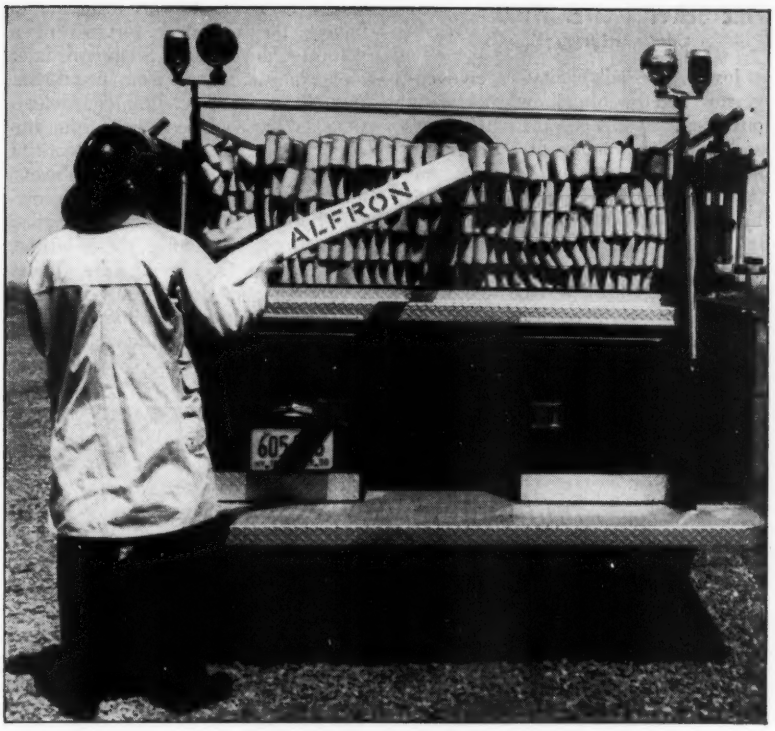
Fire on Carrier Midway Laid to Navy Firebug

The U. S. Navy recently disclosed that a suspected firebug damaged the aircraft carrier Midway at the Subic Bay Naval Base in the Philippines last November. The fire, which was discovered in the after heat pump room, was extinguished after several hours by the combined efforts of the ship's crew and the naval base fire department. Several compartments surrounding the pump room were flooded to stop the blaze.

The Navy said the over-all operating capability of the big ship was not impaired and the carrier departed on schedule two days after the incident. An investigation conducted on the scene pinned the blame on "a damage control man suspected of being a pyromaniac with a hero complex."

Metal Furnace Explodes; Workman Fatally Burned

Joseph Kisco of Perth Amboy, N. J., died on October 30 of injuries he received less than 24 hours earlier in the explosion of a copper converter at the U. S. Metals Refining Co. plant in Carteret, N. J. Four other men suffered burns. A crane operator told police he had just dumped a load of copper into the furnace when it exploded.



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And it lasts longer. Alfron will stand up under punishing abuse that ruins ordinary hose. Last year, for example, the U. S. Army made this test: Two lengths of all-Dacron hose and ordinary cotton jacket hose were dragged from a jeep at 20 mph for 115 miles. At this point the cotton jacket hose was almost completely destroyed, *but the outer jacket of the all-Dacron hose was not worn through at any point!*

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*Registered Trade name for Dupont's Polyester Fiber

FIRE SERVICE LITERATURE

Continued from page 45

Joseph Kendall Freitag, a civil engineer and architect, who already published "Architectural Engineering" and the "Fireproofing of Steel Buildings," brought out his "Fire Prevention and Fire Protection as Applied to Building Construction" in 1912, it being printed in the United States by John Wiley & Sons. Revised editions have been published since that date.

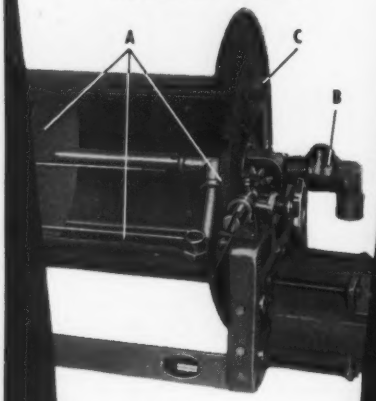
When Chief John Kenlon of the New York Fire Department undertook the preparation of the first fire college course in 1911, he was fortunate in having the volunteer services of a young engineer, Fred Shepperd, later to become editor of FIRE ENGINEERING, whose technical training, inclinations and associations gave him unequaled qualifications for the work of writing lectures on several subjects, and coordinating and editing the material prepared by the officers assigned as instructors. Among these writers were Chiefs George J. Kuss, James Heffernan and Henry B. Helm, men whose works are still helping firemen climb the promotion ladder. The textbooks by Fred Shepperd which have been published by FIRE ENGINEERING are found in every fire station library and his contributions to fire administration and technical pamphlets and manuals are a well-stocked library in themselves.

After retiring as chief of the New York Fire Department in 1911, Edward F. Croker set about writing a book which was published in 1912 under the title of "Fire Prevention." It was more a description of the New York department than a treatise on fire prevention, but it had a satisfactory sale and was an effective contribution to fire prevention literature because of its considerable circulation among the general public.

Chief Croker's successor, John Kenlon, also entered the ranks of authors with his "Fires and Firefighters," published in 1913 by George H. Doran Company. It was an interesting account of modern fire fighting, with a review of its development from earliest times. Like Chief Croker's book, "Fires and Firefighters" devoted a considerable number of its 400 pages to a description of fire fighting in New York. It, too, had a good public sale and created much interest in fire prevention.

The professional advancement of the fire service since the foundation of the first training academy—the New York Fire College—has caused the preparation of so many training manuals and textbooks that a lengthy list will be needed to catalog them. The terrifying hazards of this age of technology have given the technicians of the fire service plenty to write about, and they have met the challenge by producing excellent textbooks on all phases of fire administration, fire prevention, fire protection and fire extinction. At a later time we may have an opportunity to prepare a story and bibliography of the many fine works in the widely diversified professional field of the fire protection engineers—those who work to prevent fires, and those who fight to extinguish those which cannot be prevented. □□

What's Inside Counts Most



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Arsonists Sentenced

Monmouth County Judge John G. Giordano recently imposed sentences of three to five years in New Jersey State prison on Frank Caravello and John A. Bellino for setting fire to the Victoria Hotel, Asbury Park, N. J., on October 9, 1958. Caravello had admitted setting the fire and implicated three other men, including Bellino.

During the court term Judge Giordano also sentenced Anthony Papaneril to a three-to-five-year term in state prison for setting fire to 35 bath houses in Long Branch, N. J., on June 9.

CHICAGO IMPROVEMENTS

Continued from page 37

represents the department at parades and other civic events, and was called upon to be the guard of honor at Cardinal Stritch's funeral, and at the visit of the Queen of England.

Perhaps the greatest tribute paid the firemen of Chicago came last August when 83,000 persons jammed Soldier Field to witness the first all-firemen's Thrill Show. Although it was the hottest day of the year, the crowd stayed to the very end as fire fighters put on a spectacular three-hour show which featured burning airplanes, buildings, a helicopter rescue and many other acts which made the show a tremendous success. Another show is planned for the summer of 1960.

The morale is kept high as practically everyone on the department participates in at least one of the many extra activities such as baseball, softball, handball, basketball, swimming, water skiing, skin diving, or the barber shop singers. The department conducts many tournaments for these activities, and usually presents trophies. A city-wide Christmas decoration contest among the firehouses is sponsored, with the winners receiving a color television set. This contest has drawn high praise from both city officials and citizens.

All these changes, according to Commissioner Quinn, are for one purpose: "The increased efficiency and well-being of the department." At a recent press conference, some reporters remarked that the department seemed to be taking a completely new form. Quinn merely stated that he has just begun his program of remodeling the department. He has many more ideas to increase efficiency and morale, and no idea, whether it comes from a veteran fireman or a candidate, ever passes out of sight without a complete review of its merits. Suggestion boxes are placed throughout battalions, and suggestions from all are welcomed and studied. □□

Fire Chief Needed

The City of Westminster, Calif. (pop. 24,000), is presently recruiting for a qualified fire chief. The salary range is from $540 to $645 a month, starting salary depending on qualifications. A candidate must have a high school diploma, extensive training in fire administration and at least five years of supervisory experience in a fire fighting organization. Application must be on form submitted by city, and deadline is January 29, 1960. Further information may be received from James E. Black, City Clerk-Administrator, 14381 Olive Street.

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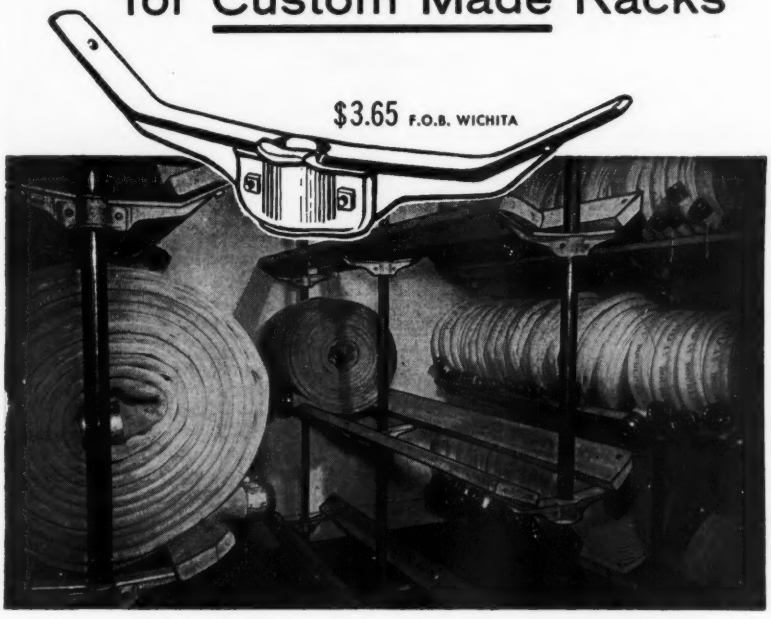

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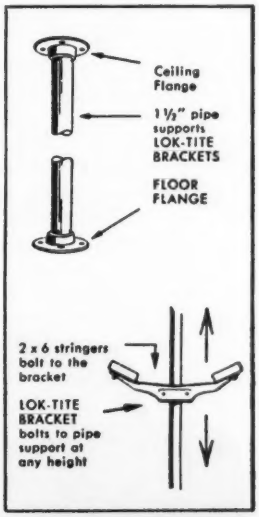
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the round table

discussion of current fire department and fire management problems

Who Is Responsible for Fire Prevention Inspections?

THIS IS THE THIRD installment of the Round Table on conducting fire prevention inspection programs.

Readers are invited to participate in the discussion which will be concluded in the February issue. Address replies to Round Table Editor, FIRE ENGINEERING, 466 Lexington Avenue, New York 17, N. Y.

The Discussion

Thomas F. Lee, Chief, Hartford, Conn.: The responsibility for all fire prevention activities of the Hartford Fire Department, including inspection work, rests with the fire prevention chief, who is also fire marshal, and who is directly responsible to the chief of the department.

He has direct supervision of all inspecting personnel as they are funneled through the fire prevention bureau from the various fire companies. The personnel of the fire prevention bureau also work directly under his supervision and direction.

Every member of the fire department participates in inspection work. Each fire company is assigned an inspection area in which daily (except Sundays) inspections are performed by the personnel of the respective companies.

This inspection program is carried out in two ways: By the individual company inspector, during the good weather months, area inspecting by the companies, with their apparatus and entire complement of men. Each company, however, maintains radio contact at all times with fire headquarters and is ready to respond to an alarm within its area of responsibility. All inspection reports are forwarded to the fire prevention office, where records are kept of these activities.

All inspection work is conducted by uniformed personnel.

Peter C. Kenny, Sr., Chief, Bayonne, N. J.: The deputy fire chief has direct responsibility for fire prevention inspections. He also supervises inspection personnel, who are uniformed firemen.

The fire prevention bureau alone conducts inspections.

W. Bailey Maddox, Chief, Anderson, S. C.: The chief of the fire department has direct responsibility for fire inspections. As to this date, the city does not have a fire prevention bureau in operation.

The chief also has direct supervision over inspection personnel.

All of our fire inspections, consisting of quarterly and annual checks, are made by the officers and privates of the department on an off-duty basis. Periodic and spot inspections are made by on-duty men as needed.

All inspectors are uniformed firemen.

Leo C. Driscoll, Chief, Boston, Mass.: The assistant chief of department is in charge of fire prevention inspections.

Inspections are supervised by a lieutenant inspector in charge of the inspection force and the arson squad, who makes daily and weekly reports to the assistant chief in charge.

Frequently one man from each company (including officer personnel), is assigned to inspection work in his district.

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THIS MONTH'S QUESTIONS

What person in your department has direct responsibility for fire prevention programs?

Does this person have direct supervision of inspection personnel at all times? If not, state manner of supervision.

Are inspections carried out solely by the fire prevention bureau or comparable office? If not, how are they conducted?

Are all inspectors uniformed men? If not, briefly state type of personnel filling positions.

Also in-service inspections are performed twice a week by each company in the city, with the apparatus out on the street and available for response to alarms. Buildings are inspected on a street-by-street, and block-by-block basis when performing the latter type of inspection.

All our inspectors are uniformed firemen.

Charles Crammer, Acting Chief, Asbury Park, N. J.: The chief has direct responsibility for fire prevention inspections and supervises inspection personnel at all times.

Inspections are carried out by the fire inspector, who is a uniformed man.

R. F. Swanborough, Chief, Hamilton, Ont.: The chief fire prevention officer is directly responsible for fire prevention inspections.

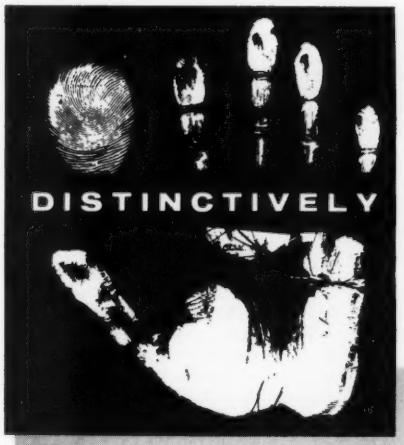
All personnel of the fire prevention bureau, inspectors and office staff, are under the direct supervision of the assistant chief fire prevention officer.

In addition to inspections carried out by members of the fire prevention bureau, inspections are also made of commercial establishments and homes by members of the regular fire department. These companies who are in service at all times, make inspections in their own districts.

All inspectors, both members of the fire prevention bureau and those of the fire department, are in full uniform at all times. One man, who carries out arson investigation and works with a detective from the local police force, does wear civilian dress.

Charles P. Linnell, Deputy Chief, Bakersfield, Calif.: In the Bakersfield Fire Department, the fire marshal has direct responsibility for all fire prevention inspections and direct supervision of inspection personnel at all times.

All fire prevention inspections in the department are carried out solely by the fire prevention bureau and all inspectors



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are uniformed firemen, who are assigned by the chief engineer to the fire prevention bureau.

Lawrence J. Daly, Chief, Detroit, Mich.: The fire marshal in our department is in charge of fire prevention inspections and has direct supervision of inspection personnel.

Inspections are carried out solely by the fire prevention bureau and inspectors are all uniformed firemen.

A. L. Piper, Chief, Casper, Wyo.: The assistant chief in charge of fire prevention is responsibile for fire inspections.

Special inspections during Fire Prevention Week are under the supervision of regular assistant chiefs, along with the assistant chief in charge of fire prevention.

Inspections are carried out by the fire prevention bureau throughout the year, except during Fire Prevention Week.

Not all inspectors are uniformed firemen; the city building inspector, city electrician and the county health officer assist with inspections two days each week.

James J. Mullen, Chief, St. Louis, Mo.: The fire marshal in our department is responsible for fire prevention inspections and supervises inspection personnel.

Company captains make inspections of all important buildings in their respective districts, such as hotels, schools, hospitals, etc. All firemen make in-service house-to-house inspections during fire prevention week.

All inspectors are uniformed firemen, operating under the job title of "fire prevention inspectors."

Clyde Landers, Chief, Gadsden, Ala.: The chief of the fire department has direct responsibility for fire prevention inspections, which are made in cooperation with the city building inspector and electrical inspector.

This person also has direct supervision of inspection personnel at all times.

Inspections in the Gadsden Fire Department are carried out solely by the fire prevention bureau.

All inspectors are uniformed firemen.

R. C. Spencer, Chief, Hamden, Conn.: The fire marshal in our department has direct supervision of all fire prevention activities. In fact, anything pertaining to fire prevention is handled by this person.

Paid firemen in uniform are assigned to the marshal when making inspections. These firemen assist the marshal and are taken from stations located where the inspections are to be made.

As you know, fire prevention is a year-round job and I am pleased to state that of this date, the fire loss in Hamden will be on a lower level than in the past year.

Walter N. Riley, Chief, Anaconda, Mont.: The chief of our department has direct responsibility for fire prevention inspections and supervises inspection personnel.

Men who are not on regular shifts do all the inspecting work, in uniforms.

Bert E. Line, Chief, Topeka, Kans.: The fire chief has direct responsibility for fire prevention inspections and supervises inspection personnel at all times.

Inspections are carried out solely by the fire prevention bureau and all inspectors are uniformed firemen.

George L. Holzschuh, Chief, Rochester, N. Y.: The fire marshal is responsible for fire prevention inspections and supervises inspection personnel.

In our department, we carry out company inspections, which are undertaken by uniformed firemen. □□

November Fire Losses

Estimated fire losses in the United States during November amounted to $78,582,000, the National Board of Fire Underwriters has reported.

According to Lewis A. Vincent, NBFU's general manager, this $78,582,000 loss represents an increase of 9.8 per cent over losses of $71,539,000 reported for November 1958, an increase of 10.4 per cent over losses of $71,160,000 for October 1959.

Losses for the first 11 months of 1959 now total $950,629,000, a decrease of 0.5 per cent from the first 11 months of 1958, when they amounted to $955,743,000.

These estimated losses include an allowance for uninsured and unreported losses.

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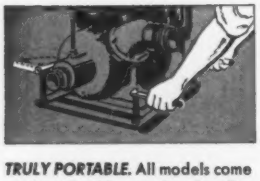


TRULY PORTABLE. All models come equipped with carrying handles for two-man carry. Weight varies from 160 to 166 lbs. Picture shows handles in carrying position.

Fast action is urgent, when fire strikes. And when the water source is hard to reach, there's nothing more useful to carry on your truck than a Gorman-Rupp Dual Fire Fighter.

In a bare half-minute, water starts flowing through the lines. It can supply water to the truck pumper sufficient to operate two ½-inch nozzles at 100 pounds, or pump directly to the fire.

Gorman-Rupp Fire Fighter Pumps are backed by a positive plain-language guarantee. Ask your distributor for Bulletin 7-FD-11 or write direct.

Model 61½A-23FB	50 GPM @ 110 lbs.
Model 6201 FF	100 GPM @ 80 lbs.
Model 6301 FF	210 GPM @ 40 lbs.

The Gorman-Rupp Company

305 BOWMAN ST. • MANSFIELD, OHIO

Persons in the News

Rabena Chief at Olmstead AFB

Albert Rabena has been appointed chief, Fire Prevention and Air-Crash Rescue Branch, Olmstead Air Force Base, Middletown, Pa. Chief Rabena has served in the U. S. Army Corps of Engineers

Fire Department at the Indiantown Gap Military Reservation, Pa., from 1941 to October 1959 with two years out for service in the U. S. Army as assistant chief of the Los Alamos atomic bomb laboratory. For the past 11 years he has been chief at Indiantown Gap.

Name New Boston Fire Commissioner

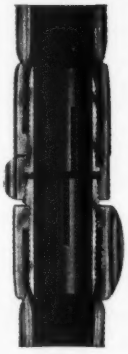
Boston Mayor-elect John F. Collins has announced that he will appoint Henry A. Scagnoli, an executive of a building materials supply firm, as fire commissioner to succeed Timothy J. O'Connor, who is retiring.

New Manager of NBFU San Francisco Office

W. Victor Slevin, administrative assistant of the National Board of Fire Underwriters, has been named manager of the Pacific Department of the National Board in San Francisco, effective January 1. He succeeds Rudolph C. Stange who is retiring as head of Pacific Coast operations.

A former FBI special agent, Slevin joined the arson department of the National Board in San Francisco in 1950, where he served until transfer to the adjustments department in New York in 1956. He returned to the West Coast in November to open the National Board's temporary field survey office in Los Angeles.

Mr. Stange has been assistant general manager of the National Board since 1945, and has 39 years of service with the Board. A registered professional engineer, he has been a leader in fire prevention work and is chairman of the NFPA Committee on Piers and Wharves. He is also a member of the Pacific Coast Fire Chiefs Association. □□



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1. FULL FLOW—no significant reduction of internal diameter. Pressure is assured.
2. STREAMLINED—round-edged design, no projection.
3. INTERNAL EXPANSION—prevents shrinkage of the hose at the coupling.
4. ACCURATELY MACHINED—always the same . . . interchangeable.
5. REMOUNTABLE—can be removed and re-attached with a key any number of times without cost.
6. WEIGHT—no heavier than comparable expansion type coupling.

TESTED for 1400 lbs. pressure and 2400 lbs. pull under full pressure.

Successfully Tested To Bursting Point Of Double Jacket, Single Jacket And Sweat Hose

Recognizing the trend toward higher and higher pressures in fire fighting, Bar-Way has developed a revolutionary coupling that will withstand the pressure and the pull. This new coupling is designed to fire fighting specifications. It guarantees full flow, full pressure, it is streamlined to slip over obstructions, and it can be interchanged anywhere at any time without damage to either the tube or fabric. Specify Bar-Way! Write Bar-WayMfg.Co.,Stamford,Conn.

BAR-WAY BAR-WAY MFG. CO., STAMFORD, CONN.

"FABRIC" FIRE HOSE
HALPRIN *Distr. in So. Calif.*
Specify "UNISPUN"
FABRIC BRAND MUNICIPAL HOSE,
UNDERWRITERS' & INDUSTRIAL GRADE
All New, Lightweight, Flexible Hose
SEE FABRIC AD ON PAGE 5
SEND FOR OUR COMPLETE CATALOG M-300

HALPRIN SUPPLY CO.
1355 South Flower St., Los Angeles 15, Calif.

DRY TESTING PUMPERS

Continued from page 40

Interpretation of readings

Positive Displacement: Aside from the probability of internal defects due to years of service and increasing slippage, inability to create vacuum generally indicates a leak on the suction side and is definitely indicative of poor performance at draft. Any substantial air leak on the suction side will make the pump noisy and, in some measure, reduce its discharge or lift, even though the pump is able to develop enough vacuum to prime.

There is no point in expecting a rotary to hold vacuum when the pump is stopped. When running, the rotors should develop a vacuum comparable to that developed by the priming device on a centrifugal pump. If the discharge valves are closed the instant the pump is stopped, the air under atmospheric pressure within the discharge side of the pump will immediately leak through the rotors into the suction side, reducing substantially the vacuum in this side of the pump as well as the suction hose. Thereafter, a further drop in vacuum indicates a leak in the suction hose, pump suction or pump discharge.

Centrifugal Pumps: Because dry test readings obtained on a positive displacement pump are truly indicative of results at draft, we may say that they are more revealing than those obtained on centrifugals on a similar test. On this latter type, satisfactory readings on a dry test indicate the pump has no leaks and is ready to prime and pump at its designed performance. However, if unsatisfactory readings are caused by a leak on the discharge side, it foretells only initial difficulty when attempting to prime. If by means of improvised priming from an outside source, the pumper is once able to discharge water, it may completely satisfy its quantity and pressure requirements.

On this type, both sides of the fire pump, as well as the suctions, are under a vacuum during the period of the dry test. As such, a leak on the pressure side will show poor results on the dry test and be a definite hindrance while attempting to prime the pump at an actual draft job. As mentioned above, however, once water is successfully lifted and discharged, such a leak will not adversely affect pump performance, as it will be sealed by water under positive pressure. Because of this mitigating effect of leaks, however small, on the discharge side, many pumps frequently lose their prime during the interval of changing from the "prime" to "fire pump" position. It is, therefore, important to know how long a pump can hold the vacuum. Initially, a high vacuum reading may be obtained by an efficient primer in spite of a leak; but the vacuum drops off rapidly once the primer is disengaged. At draft, the effects of this condition are considerably lessened on those pumpers on which the fire pumps can turn while priming. If both fire pump and primer must run during the dry test, it is good practice to throw the pump out of gear when, after the maximum vacuum is reached, the primer is shut off.

Conclusions

Essentially, the results of a dry test on a pumper show the efficiency of the priming device (which may be the fire pump) and the tightness of the fire pump, the suctions and their connections. As such, it is a definite indication of the height to which water can be lifted statically at draft, through the medium of the primer alone. On a positive displacement pumper a poor performance on a dry test means not only that the height to which the

PONTIAC AMBLEWAGONS BY THE DOZENS

ARE BEING USED BY FIRE AND RESCUE UNITS!

Pictured here is a group of fourteen 1959 Pontiac Amblewagons being used by the Louisiana state hospital system for ambulance and rescue work. All over the country fire and police departments, hospitals and rescue units have found this versatile, low cost vehicle meets all requirements. It's ideal as a chief's car, prowl and rescue unit and personnel carrier, too. Remember, it converts back into a standard station wagon in minutes. Mighty important at trade in time! Now that the *safe* wide-track Pontiac Amblewagon is available, why buy expensive one purpose units?

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pumper can be primed will be limited, but also that, aside from such considerations as the size of the suction lines and the motor, the quantity discharged at various heights will be adversely affected.

However, on a centrifugal pumper, dry test figures do not necessarily bear a definite relationship to actual results at draft. Satisfactory dry test figures indicate ability to prime at high lifts and, barring defects in the suction lines, motor or within the fire pump itself, rated discharges at specified heights should be achieved. Poor readings on a dry test indicate difficulty when priming, but, since the leak may be on the discharge side of the fire pumps, it has no direct relationship to the quantity of water the pumper can lift to different heights.

Various methods by which the problems presented by defective primers or leaks in fire pumps may be solved on the fire ground by improvised priming will be presented in a future article dealing with such topics.

Dry test figures, as shown on the compound gage (or better, a vacuum gage or mercury manometer), bear no definite relationship to those which are read while the pumper is actually discharging water. Initially, when we prime, the needle of the gage moves to a point proportionate to the static lift (1 inch—1.113 feet). For a 10-foot lift, this should be approximately 10 inches. As the gates are opened and lines supplied, the gage shows additional inches of vacuum. At any point when discharging, this reading shows the total sum of all the losses, i.e., head loss (static lift), friction loss in suction lines, velocity head loss, strainer and other miscellaneous losses in the suction line or lines. All of these, with the exception of head loss or static lift, increase approximately as to the square of the discharge. □□

For their cooperation in the compilation of this article, the author wishes to thank the following officers of Supervising Engineer Co. 1, F. D. N. Y.: Lieutenant Thomas Clements, Lieutenant John Hack and Lieutenant James Regan. For his help and many suggestions, a special word of thanks is expressed to R. B. Sargent of the Hale Pump Company, Conshohocken, Pa.

Deaths Lead To Arrest

The death of two Chicago residents on December 21 was attributed to lead poisoning from fumes resulting from burning discarded storage battery cases as fuel. Scores of persons were made ill by the fumes. Police immediately arrested the president of a battery company and charged him with discarding trash on private property.

THEN and NOW

PREVIOUS TESTS 1902
At the Convention of the International Association of Fire Engineers, held in New York in September, 1902, the GLOBE Turn-Out Suit was tested by a solid 1½-inch stream forced at 180 pounds pressure.

Under any conditions the Suit DID NOT WET THROUGH!

1903
The GLOBE Turn-Out Suit was tested at the Convention of the International Association of Fire Engineers, held in Atlantic City in September, 1903. A solid 2-inch stream from an Eastman 4-way deluge set was played on a fireman wearing the GLOBE. Again the Suit DID NOT WET THROUGH!

The GLOBE Suit was considered the best then — it's twice as good today! Specifically, over 60 years of constant improvement have made it warmer, lighter in weight, tops in comfort, with highest quality hardware and several models available for every possible use under all conditions. Heat it — freeze it — soak it — you can't hurt it. It's still the standard of excellence today throughout the world!

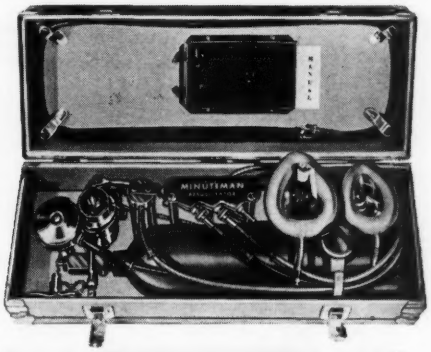
STANDARD SINCE 1901

GLOBE MANUFACTURING COMPANY
PITTSFIELD, N.H.

FREE Fully illustrated, 9-page catalog on the complete GLOBE fireman's suit and accessories line. Aluminized suits also available.

The STEPHENSON MINUTEMAN

saves minutes that save lives



Here's the MINUTEMAN RESUSCITATOR in a nutshell:

SMALL 24½" x 8¾" x 7¾".

LIGHT under 30 lbs. with tank.

VERSATILE resuscitator, inhalator and aspirator, all in one instrument. With extra Midget attachment, the MINUTEMAN will resuscitate 2 patients and aspirate a third simultaneously.

ECONOMICAL operates 40 minutes with D cylinder.

WIDE RANGE pressures adjustable from Adult to Infant, with manual override when needed. Easily regulated to mixtures from 100% oxygen to 50% oxygen and 50% nitrogen from the air.

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—L. A. County F. D. photo

Los Angeles County Fire Department Engine 1 after collision with mobile crane in East Los Angeles. Acting captain, wearing helmet, was not seriously injured in crash

Helmet Protects Officer in Freak Collision

Acting Captain Elton Schoonover of the Los Angeles County Fire Department henceforth will be in the vanguard of those who insist firemen should wear helmets on apparatus while responding to alarms. Schoonover was in command of Engine 1 responding to an industrial district alarm in East Los Angeles November 25 when the pumper was hit broadside by a mobile crane's 35-foot steel boom. The crash also brought a power pole and lines down on the rig. Schoonover's helmet was knocked off his head by the boom, but he was not seriously injured.

The pumper was northbound on Gage Avenue at Brooklyn, proceeding through the intersection against the signal when the collision took place. The crane driver told investigators he failed to hear the siren. Damage to the late model rig was estimated at $8,000. Ironically, the automatic water flow alarm was accidental.

—Cliff Dektar

Butane Gas in Water Mains Causes Three Explosions

A Crestview, Fla. plumber mixed his pipes while working at a small cafe recently and hooked a gas line from a butane tank onto the water main, causing explosions at the cafe and in two homes which injured five persons, three seriously enough to be hospitalized. The blasts came when water spigots were turned on and fumes reached pilot lights in gas heaters.

After the trouble was found, television stations and police with megaphones warned residents not to turn on the water. The fires started by the blasts were put out by local fire fighters but not without some difficulty. After water in the Crestview engine's tank was exhausted, the apparatus had to go to the edge of town to replenish its water supply with gas-free water. Thousands of gallons of water were flushed from the mains to purge them of gas.

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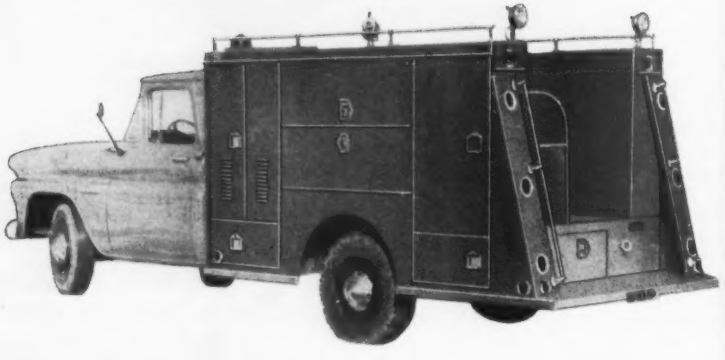
F-132 CRASH UNIT



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- Available in Any CA (Shown 60" CA)
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F.D.I.C. Program Set

The program for the forthcoming Fire Department Instructors Conference scheduled for March 1 through 4 at Memphis, Tenn., has been completed. Conference Chairman Emmett T. Cox, director of training, Fire Prevention Department, Western Actuarial Bureau, Chicago, has announced that the first session will begin promptly at 9:13 a.m. on Tuesday, March 1, and the conclusion at 3.32 p.m., Friday, March 4. A host of fire protection and fire prevention authorities have been scheduled for lectures and as luncheon speakers. Outdoor demonstrations, scheduled for Wednesday afternoon, will include LP gas fires, Snorkels, the fire stick, pumping foam, rocket fuel, electronics, railroad tank fires, foam-compatible powder, hand extinguishers, pompier drill, hose, and a U. S. Navy helicopter demonstration. As in the past, the noon luncheon each day will be served through the courtesy of the Memphis Fire Department, John C. Klinck, chief.

Preceding the conference on Monday, February 29, the NFPA Committee on Fire Service Training will hold its 1960 annual meeting in the Claridge Hotel, beginning at 9:00 a.m.

Connecticut Departments Set Up Mutual Aid Plan

A program of mutual aid between six area fire departments in Connecticut—Weston, Wilton, Redding, Ridgefield, West Redding and Georgetown—was instituted on November 8. More than 40 fire chiefs, assistants, officers and members of the departments adopted the plan unanimously in a meeting in the Georgetown fire station. During the meeting each chief listed an inventory of all pieces of equipment in his company.

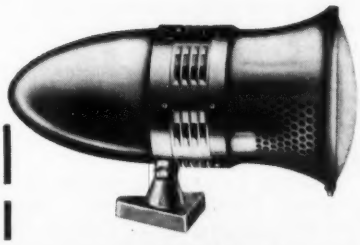
Under the plan, any one of the six towns needing assistance at a major fire calls the fire emergency number of a neighboring town, specifying the equipment and manpower needed. The nearest department to the one answering the call would go on a stand-by emergency alert to cover the answering department's area in case of fire.

Fire Chief Wendell R. Keeler of the Georgetown Fire Company, who has been working on the details of such a program for several months, said that although in the past emergency calls had been answered by a neighboring department, it was not an organized procedure and sometimes resulted in confusion.

The six departments will meet in January to conduct a test exercise. Attending the meeting were John O'Brien, of Weston; Robert Cavutto, of Wilton; Clifton E. Palmer, Jr., of Redding; J. Birdsey Sanford, Jr., of West Redding; Acting Chief Frank Santini, of Ridgefield, and Chief Keeler.

Also attending were Assistant Chief Albert Schwartz, of Bridgeport, chairman of the Mutual Aid Committee of the Fairfield County Fire Chiefs' Emergency Plan; and Laurence Ford, of Redding, fire coordinator of Fairfield County.

Tom Magner



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Siren sounds a penetrating warning, red light automatically flashes authority. Traffic opens instantly, day or night. FREE ROLLING feature.

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FIRE ALARM SIREN
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Quick acceleration, power-plus . . . Model M really gets the boys out in a hurry! Used by championship companies from coast to coast. A dependable, heavy-duty siren built of the finest materials throughout.

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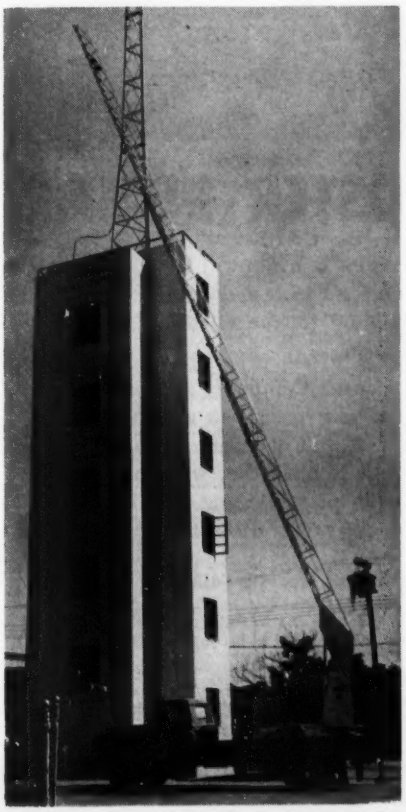


SPONCO AERIAL LADDER

The building shown in the photograph is the McAlpine Drill Tower (Oklahoma City Fire Department), and the aerial shown is the all-new, all-steel SPONCO AERIAL LADDER. The tower is a full five stories high yet the all-new SPONCO, used as a water tower, could pour water *down* on the roof of the tower—the accepted way to fight fires.

The SPONCO is an all -steel unit with all operations powered—raise and lower, fly extension and retraction, and turntable rotation. The mechanical refinements engineered into the SPONCO add greatly to the speed, smoothness and operational efficiency of the unit.

The SPONCO, a product of the Memco Aerial Ladder Company, being entirely new has been given the new name—derived from the name of our parent company—SPONHALTZ ENTERPRISES, INC.

The new SPONCO is priced within the reach of the smallest city needing an aerial, and your favorite fire truck manufacturer can build one into your new fire truck. Investigate TODAY — for details write or telephone.

MEMCO AERIAL LADDER CO.
1007 N. W. 36th Street
Oklahoma City 18, Oklahoma

The Watch Desk

A Weighty Problem

One day last summer the Baltimore Fire Department was called for an unusual rescue operation. A 50-year-old woman weighing more than 400 pounds suffered a stroke in her third-floor apartment and the attending doctor wished to have her taken to the hospital. It required five fire fighters to lift the woman from the sofa, strap her in a basket-type litter and lower her to the ground via an extended aerial ladder. She was then placed in a fire department ambulance for the trip to Provident Hospital.

Eugene Short

Not So Amusing

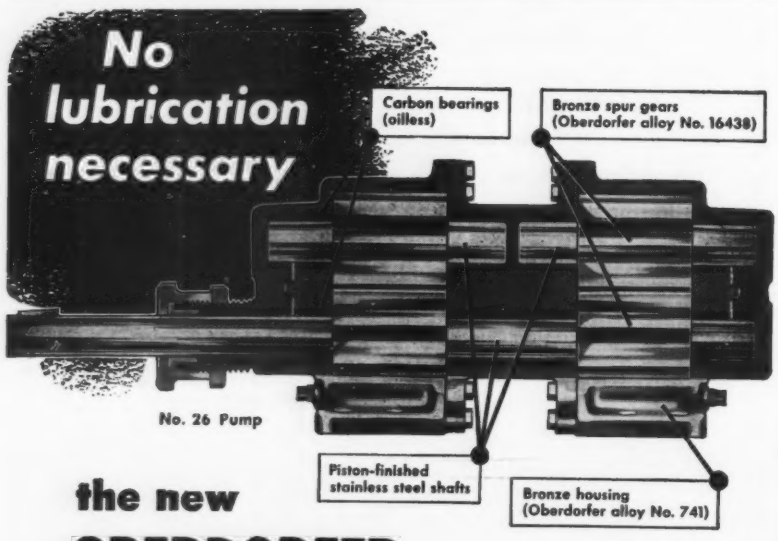
Dashields Locks on the Ohio River in Western Pennsylvania touch Moon Township but are located closer to the fire station of Crescent Township. Recently the diesel tow-boat "Freedom" caught fire while in the locks. The boat is owned by a company which has its headquarters on Neville Island about 7 miles up the river. An alarm was sent to the fire department of both townships. Somehow the directions were garbled and resulted in the apparatus passing each other on the highway. Turned out the Moon Fire Department was responding to Freedom "Township," some 9 miles down the river, while the Crescent Fire Department was headed for Neville Island. By the time the strays were rounded up and headed in the right direction, the boat's crew and lock operators had the fire under control. Damage was estimated at $250,000.

B. H. Morrison

Off the Tape

A passer-by noted flames in the Cottage Hose Co. station, Carbondale, Pa., Fire Department on November 21 and sounded the alarm. Local volunteers rushed to the scene and rescued the company's brand new engine but efforts to save the building were in vain. Cause of the blaze is undetermined. . . . Recently the Glendale, R. I., Fire Department responded to the first call sounded on its brand new public alarm siren. The fire was in the Harry Wolstenholm residence where the button for activating the siren is located. Mr. Wolstenholm not only was the first to push the button, he was very grateful for having it. . . . In Pulaski, Va., a store owner complained to police that four cases of roman candles had been stolen from his store. He was promptly arrested on a charge of violating the anti-fireworks ordinance . . . Officials of Fort Plain, N. Y., recently invested a $20,000 bequest to the fire department in government bonds. The vamps will have the use of the interest on the investment. . . . In Manville, R. I., the taxpayers were treated to an unusual spectacle on December 15. The local fire fighters argued against a proposal to increase their salaries by 50 per cent! . . . The volunteers presently receive $50 a year and feared the increase to $75 might result in tax increase. The pay raise was passed by one vote and the tax rate remained unchanged. . . . Last October Carl Dachton of Miami, Fla. decided to build a better burglar trap. Dachton dialed his home telephone number up to the last digit. Instead of completing the call he inserted a cork behind the dial finger stop and attached a wire to it. His theory was that a thief would trip and complete the call causing the alarm. The trap worked very well and he caught the burglar, a 15-year-old intruder. The only hitch was that during the period he had tied up 99 other telephones by dialing the digits in advance. The telephone company warned that anyone emulating Dachton would lose his phone. . . . Three curious youngsters in Cincinnati lost their Christmas toys because they couldn't wait to see them. The youngsters, aged 3, 5 and 6, dropped a match while snooping in a closet of their grandparents. The resulting fire destroyed the toys, family clothing and damaged furniture in two apartments before fire fighters extinguished them with a $3,000 loss. Said Grandma Harris, "Now they won't get

Continued on page 73


No lubrication necessary
Carbon bearings (oilless)
Bronze spur gears (Oberdorfer alloy No. 16438)
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Piston-finished stainless steel shafts
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BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

PERFORMANCE DATA—No. 26 and No. 13 PUMPS

Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

LIST PRICES — No. 26 — $249.50 No. 13 — $122.50

Slightly higher west of Rockies

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

Obituaries

Chief T. J. Maloney

Thomas J. Maloney, 64, chief of the Jersey City, N. J., Fire Department, died December 12 in St. Francis Hospital shortly after suffering a heart attack at his home. He was on terminal leave pending his retirement on January 1.

Photo by Warren C. Zapp

Chief Maloney joined the Jersey City department in 1920 and was promoted to captain in 1927. He was appointed battalion chief in 1931, deputy chief in 1936 and became head of the department on May 1, 1951. During his career he received six department commendations and one honorable mention for bravery. He was a member of the International Association of Fire Chiefs, the Eastern Association of Fire Chiefs, the New Jersey Paid Fire Chiefs' Club and the New Jersey Fire Chiefs Association. He is survived by his wife and three sons. One of the latter, Raymond, is a member of the Jersey City Fire Department.

Dr. W. D. Claudy

Dr. William D. Claudy, 45, a member of the Washington, D. C., Board of Fire and Police Surgeons, died in his sleep at his home in Arlington, Va., on October 6. A nationally known author on medical subjects pertaining to the fire service, he was appointed to the District of Columbia Board in 1944.

P. W. Coombs

Paul W. Coombs, 52, first deputy chief, Syracuse, N. Y., Fire Department, died December 8 of a heart attack. He was stricken at his home and died shortly after being taken to Midtown Hospital. Chief Coombs was appointed a fireman in 1930, promoted to lieutenant in 1940 and captain in 1946. He was named district chief in 1953 and became first deputy chief on September 9, 1957.

On June 11 of this year, he was stabbed twice in the shoulder, while attempting to rescue a berserk man at a fire (FIRE ENGINEERING, October 1959). Chief Coombs was the son of the late Chief

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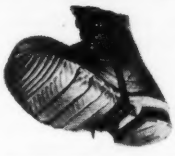
play safe with NORLUND creepers!



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Industrial Creeper
Strongest ice creeper made! Grips both sole and heel; attaches by web strap and chain; coated to prevent rusting.

Calked Heel Plate
⅜" case hardened calks riveted to ¼" steel plate. Screws supplied for permanent attachment to leather heels.

Norlux® Detachable Creeper
Our best seller; prevents slipping; can be worn over shoes or boots; lightweight; calks riveted to flexible steel strips.

Detachable Heel Plate
A heavy-duty creeper, withstands severe service; ⅛" tempered steel forms four ½" points for sure grip. Web strap attachment.

Safety Foot Chains
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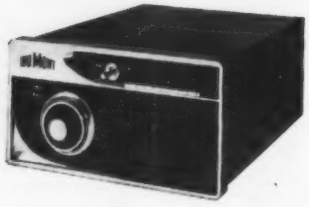

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Charles S. Coombs who headed the Syracuse department from 1921 to 1929. Three of his brothers had also been members of the department.

J. K. Menzies

C. C. Johnson

Clarence C. Johnson, 84, a former president of American District Telegraph Company, died December 6 at a convalescent home in Briarcliff Manor, N. Y. He resided at Fair Lawn, N. J.

Mr. Johnson joined ADT in 1899. He was elected vice president in 1918, and appointed president in December 1929. He retired in 1945. He was a director of the Automatic Fire Alarm Companies of New York and Delaware, and a life member of the American Institute of Electrical Engineers and the National Fire Protection Association.

Chief James McClelland

Chief James McClelland, 41, Brookfield, Mo., Volunteer Fire Department was fatally injured on November 22 when the upper front wall of the Evangelical United Brethren Church toppled during a fire which destroyed the building. Chief McClelland and two firemen were in the vestibule of the church when an explosion occurred. The fire fighters were thrown 25 to 30 feet out of the building and showered with bricks and debris. The three severely injured men were rushed to the hospital where the chief died of his injuries.

Chief McClelland, who was also Linn County coroner, joined the Brookfield department in 1942, and was named assistant chief in 1955. He was elected chief on March 6, 1957.

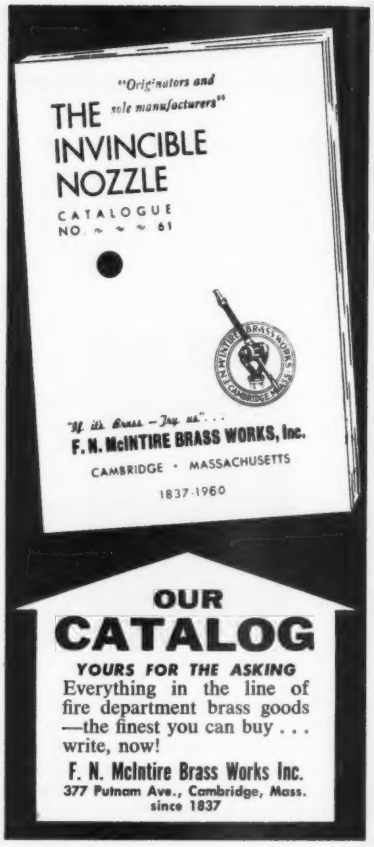
Frank A. Soracco, OCDM

Frank A. Soracco, 53, died of cancer on December 3 in Acton, Mass. A former lieutenant in the New York Fire Department, he retired in 1956 after 20 years of service and joined the Office of Civil and Defense Mobilization, then the Federal Civil Defense Administration, as operations planning officer (technical requirements), Region 1. Working out of the Harvard, Mass., headquarters, he was responsible for Federal coordination and direction of all matters pertaining to the safety services including fire, police, rescue and warden programs in the New England States, New York and New Jersey. He was particularly active in the development, design and construction of the rescue facilities of the several Civil Defense training centers in Region 1.

Chief E. J. Sackett

Edwin J. Sackett, 63, chief of the Chevy Chase, Md., Fire Department for the past 24 years died of a heart attack at his home on December 5. Chief Sackett joined the Chevy Chase department as one of its first paid men in 1927 and was appointed chief in 1935.

I. W. Johnson, Sr.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Ex-Chief A. F. Taylor

Ainslie F. Taylor, 81, retired chief of the Richmond, Va., Fire Bureau died November 23 at a Richmond hospital. Chief Taylor joined the Richmond department in 1899 and was promoted to lieutenant in 1907. He became a captain in 1910, battalion chief in 1923 and chief of department in 1940. He was succeeded as chief in 1944 by the late John E. Finnegan, but remained with the department as assistant chief in charge of the fire prevention division, until his retirement in 1949.

I. W. Johnson, Sr.

Ward LaFrance Officers Killed in Air Crash

Roy W. Wilson, president, and Joseph Faehnbrich, controller-treasurer, Ward LaFrance Corp., Elmira Heights, N. Y., were killed December 11, when the single-engine company plane Wilson was piloting crashed in a heavy rainstorm at Chemung County Airport near Elmira.

Airport officials said the plane, enroute to Newark, N. J., developed icing trouble and returned for an emergency landing about 10 minutes after takeoff. The crash occurred about 400 feet from the field.

Mr. Wilson, 40, became president of Ward LaFrance late in September. □□

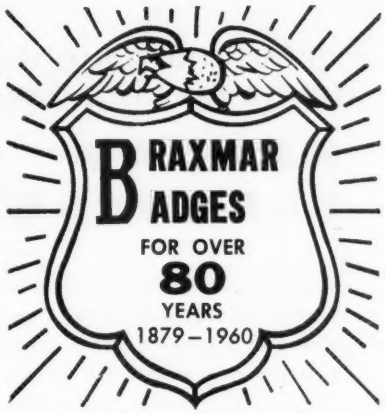
THE WATCH DESK

Continued from page 70

any presents—not unless there really is a Santa Claus!" . . . Mrs. Loree (Dolly) Mariwurm, described as a blue-eyed, 5-foot 10-inch blonde, was named public service commissioner of the Livonia, Mich., Fire Department on October 24. Mayor William W. Brashear picked her to boss the city's 47 policemen and 55 firemen when the job fell vacant. The mayor justified his appointment because "we found she had all the qualifications of our male candidates." The city council expressed its confidence in the selection at the next meeting—they voted to cut the pay of the office. (***Norris T. Morton***) . . . A San Jose, Calif., fire captain was accused last September of bilking six persons out of $20,000 with a unique automobile steering wheel. The captain was accused of six counts of grand theft after advertising that he planned to manufacture a spring-equipped steering wheel to reduce accidents. Five investors put $2,000 each for a 50-per-cent interest in the business and a sixth invested more than $9,000 for his share.

Fires Back

Last September Mrs. Rose Parsley set fire to some trash in the backyard of her Columbus, Ohio, home. A .22-caliber cartridge in the trash exploded and the bullet struck the lady in the right hip. She was treated at a hospital and released. □□



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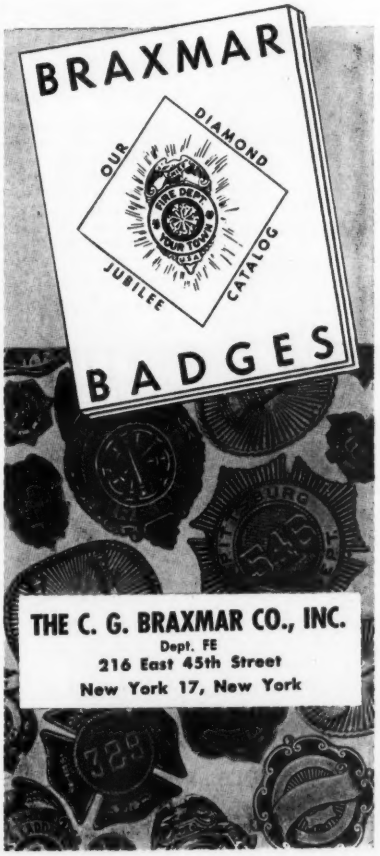

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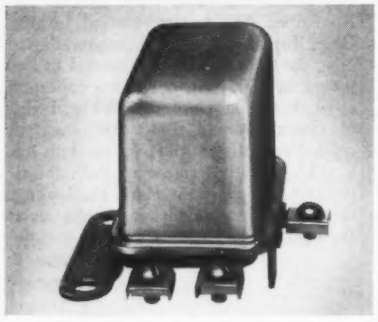

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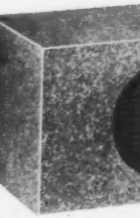

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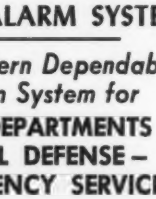

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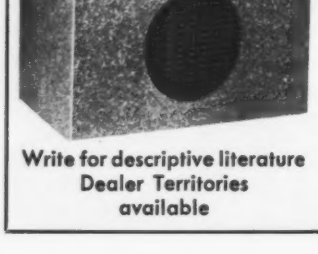

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Coming Events

Apr. 23-24—Fire Fighters Association of Missouri. Annual meeting, Kirksville, Mo. For information write: John L. Welsch, Secretary-Treasurer, 305 Forest, Harrisonville, Mo.

June 2-4—Eastern Association of Fire Chiefs. Annual meeting, Ocean City, N. J. Secretary, Chief Edwin J. Clark, Box 328, Wayne, Pa.

June 3-4—Indiana Volunteer Firemen's Association. Annual meeting, Clinton. Secretary, Harry Fries, Rural Route 3, Walkerton, Ind.

June 10-11—Dauphin County Volunteer Fireman's Association. Annual meeting, Harrisburg, Pa. Sponsored by the Goodwill Fire Co. No. 7 and Reily Hose Co. No. 10. Secretary, D. Edgar Fox, 723 North 19th Street, Harrisburg, Pa.

June 19-21—South Carolina State Firemen's Association. Annual meeting, Poinsette Hotel, Greenville, S. C. Secretary-Treasurer, David H. Gillam, Jr., Orangeburg, S. C.

June 19-22—Campus Safety Association. Annual meeting, Cornell University, Ithaca, N. Y. For information, write Daniel P. Webster, Staff Representative, Higher Education Section, National Safety Council, 425 North Michigan Avenue, Chicago 11, Ill.

Aug. 19-21—Connecticut State Firemen's Association. Annual convention and parade, New London, Conn. For information write the New London Firemen's Association, Convention Committee, Inc., P. O. Box 811, New London, Conn.

Sept. 12-15—International Association of Fire Chiefs. Annual meeting, Hotel Manger Seneca, Rochester, N. Y. Secretary-Manager, B. Richter Townsend, 232 Madison Avenue, New York 16, N. Y.

Sept. 19-22 — Canadian Association of Fire Chiefs. Annual meeting, Calgary, Alberta. Secretary-Treasurer, Chief Allan H. Clark, Fire Headquarters, Lakefield, Ont.

Nov. 3-5—International Rescue and First Aid Association. Annual meeting, Benjamin Franklin Hotel, Philadelphia, Pa. For further information, contact the Executive Office, 314 King Street, Alexandria, Va. □□

FIRE COLLEGES

Fire Department Instructors Conference—Mar. 1-4, Memphis, Tenn. For information, write Emmett T. Cox, Chairman, Western Actuarial Bureau, 222 West Adams Street, Chicago 6, Ill.

Florida State Fire College — Mar. 14-18 — **Units 101,** Tools, Forcible Entry, Breathing Apparatus, Extinguishers; **106,** Fire Inspection; **201,** Instructor Training. Mar. 21-25, **Units 102,** Hose and Ladders; **202,** Company Officer Training; **206,** Fire Prevention and Protection. Mar. 28-Apr. 1, **Units 103,** Rescue, Ventilation, Salvage and Overhaul; **105,** Fire Apparatus and Pumps; **204,** Fire Fighting Tactics. Apr. 4-8, **Units 104,** Fire Streams; **107,** Arson Detection; **208,** Fire Department Administration. May 16-20, **Heating and Air Conditioning.** June 6-10, **Fire Pump Maintenance;** Aug. 8-12, **Seminar in Arson Investigation and Detection. 208,** Fire Department Administration. May 16-20, **Heating and Air Conditioning.** June 6-10, **Fire Pump Maintenance;** Aug. 8-12, **Seminar in Arson Investigation and Detection.** Sept. 5-9, **Units 101,** Tools, Forcible Entry, Breathing Apparatus, Extinguishers; **106,** Fire Inspection; **201,** Instructor Training. Sept. 12-16, **Units 102,** Hose and Ladders; **202,** Company Officer Training; **206,** Fire Preven-

tion and Protection. Sept. 19-23, **Units 103,** Rescue, Ventilation, Salvage and Overhaul; 105, Fire Apparatus and Pumps; **204,** Fire Fighting Tactics. Sept. 26-30, **Units 104,** Fire Streams; **107,** Arson Detection; **208,** Fire Department Administration. For information contact Florida State Fire College, P. O. Box 785, Ocala, Fla.

Indiana Fire Training Program — Feb. 2-4, **Fire Administrators Conference.** Mar. 29-31, **Industrial Fire Control Course.** Apr. 20-21, **Company Officer Supervision.** May 16-20, **Basic Fire School.** All courses will be held at Purdue University, Lafayette, Ind. For information, write Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, Lafayette, Ind.

International Arson Investigators Seminar—Apr. 25-29, Purdue University, Lafayette, Ind. For information, write Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, Lafayette, Ind.

Maryland Industrial Fire Protection Short Course—Feb. 9-11, to be held at the Fire Service Extension Building, University of Maryland, College Park. For information contact Robert C. Byrus, Director, P. O. Box 85, College Park, Md.

Morris County, N. J., Fire School—February 2, Roxbury Fire Headquarters, Succasunna; March 1, Denville Fire Headquarters; April 5, Milbrook Fire Headquarters, Randolph Township. For information, write Robert H. Wright, Publicity Chairman, Long Hill Lane, Chatham, N. J.

Nebraska State Fire School—May 1-3, sponsored by the Nebraska State Volunteer Firemen's Association, and held at the Municipal Airport Grounds, Grand Island, Neb. For information contact Russell D. Salak, Secretary, Fire School Committee, P. O. Box 312, Schuyler, Neb. □□

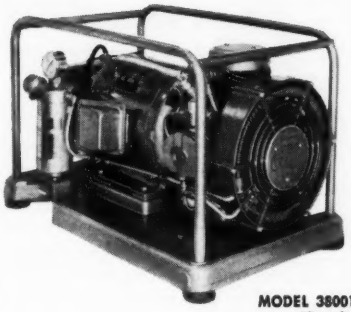
Urges License Revocation Where Fire Killed Infant

Director of Public Safety Joseph P. Sestric of St. Louis recently recommended revocation of the license of a rooming house where a five-month-old boy died in a fire September 30. Mr. Sestric made the recommendation to the board of public service on the ground that the operator of the rooming house had failed to meet the requirements of a conditional permit issued July 28.

Among the requirements, which were to have been met within 90 days after issuance of the permit, Mr. Sestric said, were the following: Cover the basement ceiling with fire resistive material, provide fire separation on all floors of the three-story structure, protect all windows within 10 feet of fire escape with fire-resistant glass, and install adequate lighting in hallways and on staircases.

Chief Position Available

Applications are invited for the position of fire chief for the Village of Hinsdale, Ill., a residential suburb, population 13,000, located 20 miles west of Chicago. The fire department includes four regular firemen plus 15 volunteers. Applicants should include age, education, special training and experience. The salary will be $5,640. Applications should be addressed to L. M. Carlman, village manager.



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What's Burning

THE FOLLOWING LIST includes fires of $10,000 and over in the United States and Canada for the period from November 19th to December 20th.

Bay Minette, Ala.— Standard Manufacturing Co., furniture firm, destroyed.

Montgomery, Ala.—Ebony Washeteria, nearby vacant flower shop destroyed; West Side Tavern, Sea Chowder Lounge and Mattie's Beauty Salon damaged.

Phenix City, Ala.—Alabama Supply & Equipment Co. destroyed.

Hope, Ark.—Ward Drug Store building damaged.

North Little Rock, Ark.—Building, 114 Main Street, housing several businesses, damaged.

Texarkana, Ark.—Three-story building, housing two furniture stores, destroyed.

Bellflower, Calif. — Bank of America branch damaged.

Carmel, Calif.—Peter Pan Lodge and adjoining dwelling of Mrs. Rumsey Campbell destroyed. Forest fire.

Castroville, Calif.—Church of Our Lady of Refuge destroyed. Possible arson.

Escalon, Calif.—Tidewater Southern Railroad train and warehouse destroyed.

Fremont, Calif.—Braga Shopping Center damaged. Short circuit.

Guerneville, Calif.—Buck's Ranch Restaurant destroyed.

Hanford, Calif.—Alyer Land Co. damaged.

Los Angeles, Calif.—Dwellings of actor Charlton Heston, under construction, and Antonio Lombardo in Coldwater Canyon area damaged. Brush fire.

Modesto, Calif.—Booth Fruit Co. packing plant destroyed.

Oakland, Calif.—California Metal Treating Co. and Pacific Diesel Sales Co. destroyed. Exploding oil drums.

Oakland, Calif. — Oakland Technical High School extensively damaged.

Sacramento, Calif.—Ellis Co. roofing plant on Stockton Boulevard damaged. Butane explosion.

San Francisco, Calif.—Lighting fixture plant at Latoma Street damaged.

San Francisco, Calif.—Rubion Sales Co. destroyed. Possible arson.

Bridgeport, Conn.—Ann Brody Bride & Gown Shop, New York Tuxedo Shop, Reardon's Department Store and Endicott-Johnson Shoe Store destroyed; Young Folks, Army-Navy Shop, Rose Flower Shop, Eddie's Bakery and Nationwide Insurance Co. in same building, damaged.

Bridgeport, Conn.—Mary Journey's Inn damaged.

Milford, Conn.—Three-story warehouse, housing U. S. Electrical Motors Co. supplies, damaged.

Milidale, Conn.—Marion Tool & Mfg. Co. considerably damaged.

Norwich, Conn.—Cottage Restaurant on Route 32 destroyed.

Rocky Hill, Conn.—Crown Petroleum Co. storage tank damaged.

Waterbury, Conn.—Commercial building and dwelling damaged.

Westbrook, Conn.—Two-story business block of John Karchek destroyed.

Dover, Del.—Shore Construction Service Inc. destroyed.

Wilmington, Del.—Robinson Lumber Co. warehouse destroyed.

Jacksonville, Fla.—Downtown warehouse, housing Florida Marketing Bureau, destroyed.

Lady Lake, Fla.—Boyer Packing House destroyed. Acetylene torch ignited flammable liquids.

Palatka, Fla.—Winn-Dixie Supermarket building damaged.

Pensacola, Fla.—Construction contractor's warehouse destroyed.

Pensacola, Fla.—Mason & Co. warehouse and office building damaged.

Brunswick, Ga.—Five retail firms in business district destroyed.

Dacula, Ga.—Dacula Sportswear Inc. plant destroyed.

Dalton, Ga.—Combination cut rug-shipping de-

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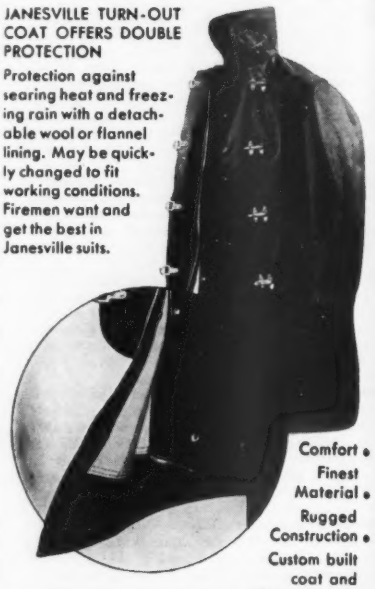
Protection against searing heat and freezing rain with a detachable wool or flannel lining. May be quickly changed to fit working conditions. Firemen want and get the best in Janesville suits.



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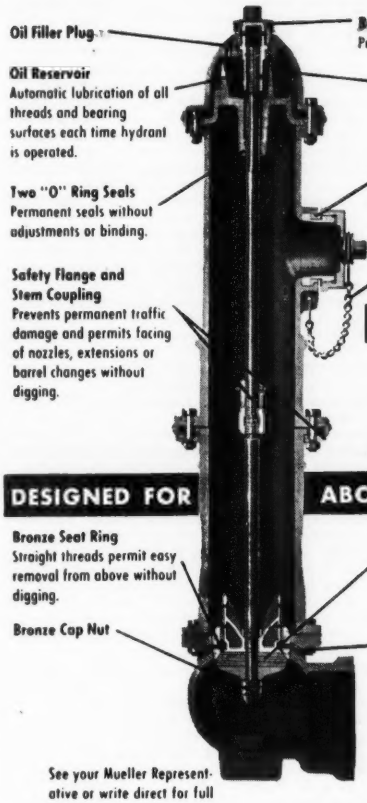
partment and warehouse of American Carpet Mills destroyed. Oil furnace in boiler room.
Gainesville, Ga.—Earl Vance & Co.'s saddle plant destroyed.
Griffin, Ga. — Miss Georgia Dairy Plant destroyed. Gas heater ignited gasoline fumes.
Pocatello, Idaho—Fuentes Mfg. Co. destroyed.
Argenta, Ill.—Willow Lou Inn destroyed.
Chicago, Ill.—Dwellings of George Mehallov, Raymond Rak and Thomas Fracasi and apartment dwelling at 63rd and Kilpatrick Sts., extensively damaged. Plane crash.
Christopher, Ill.—Rosenbert Building, housing apparel store and offices and adjoining Dillon drug store destroyed.
Chicago, Ill.—Morrison Hotel considerably damaged.
Mattoon, Ill.—T. J. Shanks Packing House severely damaged.
Patoka, Ill. — The Patoka Elementary School building destroyed.
Peoria, Ill.—Park View Arms, apartment-hotel, destroyed. Arson.
Bloomington, Ind. — Stardust Cafe destroyed; nearby barbershop and restaurant damaged.
Delphi, Ind.—Peters-Revington Manufacturing Co., makers of occasional tables, destroyed; Marathon Oil Co. bulk station and two dwellings damaged.
East Chicago, Ill.—Fischbach, Moore & Morrissey, Inc., contractors, damaged.
Evansville, Ind.—Red Spot Paint & Varnish Co., Rowe's Import Shop, Oriental Shop and R & G Furniture Co. store damaged.
Greensburg, Ind.—Super Value Bakery plant destroyed; nearby dwellings damaged.
Indianapolis, Ind.—Haag Drug Store destroyed.
Hudson, Iowa—Building housing Triangle Tavern, Wayne Towsley Grocery, Keith Motors garage and Hudson Launderama, destroyed; adjoining Hudson Auto Co. damaged.
Indianola, Iowa—Two-story buildings housing Gamble Store destroyed; Barnett Furniture Store and Case's Home Furnishings, damaged.
Jefferson, Iowa—Bowling Greene bowling alleys destroyed.
Maquokela, Iowa—Clinton Engine Corp. damaged. X-ray machine exploded.
Red Oak, Iowa—Bethlehem Lutheran Church and dwelling destroyed.
Waterloo, Iowa—M & M Bottling Co. damaged.
Covington, Ky.—Kelly Bros. Lumber Co. damaged.
Hopkinsville, Ky.—R. C. Owen Lumber Co. warehouse damaged.
Alexandria, La.—U. S. Department of Agriculture building destroyed.
Baltimore, Md.—Vacant building, formerly Deluxe Theater, destroyed. Arson.
Chestertown, Md.—Feed grinding and mixing plant on Markley Farm destroyed. Explosion.
Funkstown, Md.—Barn on Norman E. Walters farm destroyed.
Preston, Md.—Preston School damaged. Faulty switchbox.
Everett, Mass.—Building 1-5 at General Electric foundry plant damaged.
Lynn, Mass.—Two buildings at Frank H. Haskell Lumber Corp. destroyed.
North Adams, Mass. — Phoenix Professional Building, housing Phoenix Hotel, Montgomery Ward Store, office of Dr. Edmund P. Larkin, Kronick Appliance Store, Western Auto Store and clothing store of Abraham Sabin, damaged.
South Boston, Mass.—Business building housing Leeds Upholstery Co. damaged.
South Egremont, Mass.—Historic Old Egremont Tavern destroyed.
West Boylston, Mass.—Howard Johnson Restaurant on Route 12 destroyed.
Bangor, Mich.—Bean & Sons Auto Parts service garage destroyed. Torch lamp ignited gasoline tank.
Grosse Pointe Shores, Mich.—Vacant dwelling owned by Mrs. Clifford West damaged.
Mt. Clemens, Mich.—Nunneley Shoe Store, adjacent Campus Shop and Walter's Men's Wear, damaged.
Muskegon, Mich. — Apartment dwelling and Hosler's Clothing Store damaged.
Royal Oak, Mich.—Sherman Drugs, adjacent Sternberg's Bakery, milk depot, top shop and apartments damaged.
St. Clair Shores, Mich.—Shores Shopping Center housing Cunningham Drug Store, National Food Store and National Finance Co. of St. Clair Shores, damaged. Boiler explosion.
Vestaburg, Mich.—Tri-County Electric Co-operative plant damaged. Explosion.

Please turn page



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Oil Reservoir
Automatic lubrication of all threads and bearing surfaces each time hydrant is operated.

Two "O" Ring Seals
Permanent seals without adjustments or binding.

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Prevents permanent traffic damage and permits facing of nozzles, extensions or barrel changes without digging.

Bronze Weather Cap
Prevents ice-locking of operating nut.

Dry Top Design
Operating threads and bearing surfaces sealed from water.

Breech-Locked Nozzles
Interlocking lugs plus calking prevent blow-out.

Individual Non-Kinking Chains

MUELLER®

AWWA Improved Fire Hydrants

DESIGNED FOR ABOVE-GROUND MAINTENANCE!

Bronze Seat Ring
Straight threads permit easy removal from above without digging.

Bronze Cap Nut

Compression-Type Main Valve
Closes with the water pressure—and stays closed. Permits repair or modification without water shut-off!

Double Drain Openings
Automatically force-flushed each time hydrant is opened or closed.

See your Mueller Representative or write direct for full details.

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EITHER BENCH OR PORTABLE

Straight Edge Cuts Are Assured With This Precision Cutter - Just A Touch Does The Job - Cuts any Flat Fire Hose up to 3" size, Rubber Lined Cotton, Linen etc.

For complete accuracy and safety with speed, cut your hose the new modern machine way.

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Now Hose Can Be Cut Straight - With No Ragged or Raveled Edges - Assures Perfect Alignment With Seat Of Coupling For A Leak Proof Connection.

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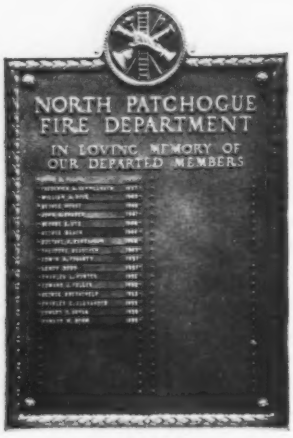

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No. 50

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1986 HOME AVE., DAYTON 7, OHIO

Columbus, Miss.—S. D. Lee Junior High School, condemned but used, destroyed.
Meridian, Miss. — Martin Dry Goods, Cedar Crest Shoe Store, Planters supply store and barbershop in downtown are damaged.
Tupelo, Miss.—Martin Mfg. Co. destroyed.
Vicksburg, Miss. — Karl's Men's Furnishings, Saul Friend Furniture Co. and Morgan & Lindsey Variety Store, destroyed. Defective electrical device.
Yazoo City, Miss.—Office and warehouse of T. A. Quinn Co. fertilizer firm, destroyed.
St. Joseph, Mo.—Wyatt-Green Paper Box Co. damaged.
Tarkio, Mo.—Dormitory at Tarkio College destroyed.
Colebrook, N. H.—Lambert's, a two-story department store, destroyed.
Carneys Point, N. J.—Dwelling at DuPont Co. plant destroyed. Explosion.
Glendora, N. J.—Glendora Discount Mart destroyed.
Jersey City, N. J.—American Fiber Manufacturing Co. warehouse damaged.
Matawan, N. J.—Soft Foam Rubber Co. destroyed.
Newark, N. J.—Prince Street building damaged.
New Village, N. J.—Storehouse and distribution center of Pennsylvania Tire Co. damaged.
Red Bank, N. J.—Anderson Bros. Garage and several trucks destroyed.
Rockaway, N. J.—Hardware World building damaged.
Totowa, N. J.—Building housing M. Van Waveren & Sons Co., flower bulb packers, and New Jersey Cooperative Egg Auction Market, damaged.
West New York, N. J.—Black Poodle Club, tavern, Half-size Shop and Jolie Tresses, wig makers, damaged. Arson suspected.
Albany, N. Y. — Broadway building, housing Mickey's Tavern and Dublin lock & key shop badly damaged. Defective wiring.
Buffalo, N. Y.—R. H. Wishman Co. garage and adjacent National Automotive Parts Assn. warehouse damaged. Explosion.
Preston, N. Y.—Chicken house on Louis Dunckel farm destroyed. Defective wiring.
Rosendale, N. Y.—Main casino of Sportsman's Park resort destroyed.
Troy, N. Y.—Field Department Store considerably damaged.
Valley Stream, N. Y.—Medical Arts Building damaged.
West Coxsackie, N. Y.—Anthony Adams & Sons mushroom plant destroyed.
Fayetteville, N. C. — Galatia Presbyterian Church destroyed. Gas furnace.
Shelby, N. C.—Shelby Cotton Mill damaged. Faulty wiring.
Statesville, N. C. — Accurate Fabricating Co. plant heavily damaged.
Conneaut, Ohio—Lewis Auto Parts damaged.
Lima, Ohio—Hillarn Hotel about seven blocks from city's main business district, destroyed.
Shaker Heights, Ohio—Dwelling of Clarence J. Carline damaged.
Steubenville, Ohio—Steubenville Country Club destroyed.
Toledo, Ohio — Maumee Chemical Co. plant damaged.
Washington Court House, Ohio—Webber G. French Farm Supply Co. damaged.
Youngstown, Ohio—Hume's Furniture Co. store, in downtown business district, destroyed; adjoining Master Bar and King's Jewelry Store damaged.
Bristow, Okla.—Bishop's Cotton Gin destroyed.
Shawnee, Okla.—Building housing woodworking, mechanical and electrical shops of St. Gregory's destroyed.
Ashland, Ore.—Masonic Hall damaged.
Dallas, Ore.—Dallas Bowl destroyed.
Dundee, Ore.—Hudson Duncan Nut Plant destroyed.
Imbler, Ore.—Ruckman Seed Processing plant destroyed.
Mapelton, Ore.—Brockmans General Store destroyed.
Portland, Ore.—Powell Rexall Drugstore damaged.
Springfield, Ore.—Jack's Alibi Tavern destroyed.
Abington, Pa.—F. W. Woolworth Co. store damaged.
Briedesburg, Pa.—Barrett Div. plant of Allied Chemical Corp., heavily damaged. Explosion.
Bristol, Pa.—Dwelling of Mrs. J. R. Torres at 317 Lincoln Ave. and adjoining dwellings at 313, 315, 319 and 321 damaged.
Bryn Mawr, Pa.—Flohr Chevrolet Agency destroyed.

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THE ALL NEW
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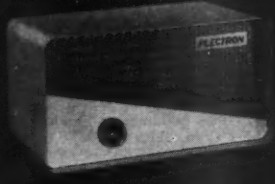

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Place a tone activated PLECTRON F.M. Radio Receiver in each fireman's home and send emergency voice messages direct from your present 2-way base transmitter into every fireman's home.
Benefit from selective calling, silent alarms, and fast, efficient alerting.
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- Fully transformer powered.
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New Model Falcon®

- Simple visual inspection with new sight glass—added neatness of design.

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SUMMIT, NEW JERSEY

Carbondale, Pa.—Carbondale Cottage Hose Co. building destroyed.
Concordville, Pa.—Building housing Nye Printing Firm destroyed.
Doylestown, Pa.—Doylestown Country Fair and market section damaged.
Easton, Pa.—Delta Kappa Epsilon Fraternity House at Lafayette College damaged.
Hazleton, Pa.—Valley Country Club damaged.
Mechanicsburg, Pa.—Barn on Herbert Ritter Sr. farm destroyed.
Philadelphia, Pa.—Gymnasium at Chestnut Hill Academy heavily damaged.
Pittsburgh, Pa.—Three-story multiple dwelling at 437½ Wilbur Street destroyed. TV set overheated and exploded.
Plymouth, Pa.—Pennsylvania Railroad's Ernst signal tower at Black Horse destroyed.
Radnor, Pa.—Wayne Iron Works damaged.
Reading, Pa.—Williams Men's Store damaged.
Scranton, Pa.—Crown Wreath Co. destroyed.
Whitepain Township, Pa.—Queenan Apartments building destroyed.
Bristol, R. I.—Mansion of late Barnes Newberry, Jr. destroyed.
St. Andrews, S. C.—St. Johns Episcopal Church destroyed. Possible vandalism, short circuit, or malfunction of heating system suspected.
Centerville, Tenn.—Barn of horse breeder B. C. Baker and 53 valuable horses destroyed.
Nashville, Tenn.—Broadway building, housing Fidelity Recording Service and Friedman's Loan Co. damaged. Overheated electric stove.
Shelbyville, Tenn.—Sunlite Corp., foam rubber reprocessing plant, destroyed.
Sneedville, Tenn.—Henry's Super Market destroyed.
Springfield, Tenn.—Bransford High School and adjoining elementary school section destroyed.
Tampa, Tenn.—German-American social club clubhouse damaged.
Denton, Tex.—Building housing the Dickson Motor Co., Cadillac-Oldsmobile agency, damaged.
Wichita Falls, Tex.—Apartment house damaged.
Brigham City, Utah—Big J Milling and Elevator Co. damaged.
Lovingston, Va.—First National Bank of Nelson County extensively damaged.
Dayton, Wash.—Columbia Co. grain growers' elevator destroyed. Short circuit.
Pomeroy, Wash.—Stram Furniture, Brown Drug Store and Richards' Funeral Home, damaged.
Prosser, Wash.—Prosser Seed Processing plant destroyed.
Republic, Wash.—San Poil Lumber Co. destroyed.
Spokane, Wash.—Ralph's OK Auto Store destroyed.
Tacoma, Wash. — Safeway Supermarket destroyed.
Wenatchee, Wash.—Wenatchee Fruit Growers warehouse damaged.
Yakima, Wash.—Consolidated Freightways Terminal destroyed. Explosion.
Yakima, Wash.—Fairview Seed Co. destroyed.
Yakima, Wash.—Morriers Hop Kiln destroyed. Electrical short.
La Crosse, Wis.—Offices of G. Heileman Brewery Co. and adjoining warehouse destroyed.
Pontotoc, Wis.—Finished Woods Inc. destroyed.
Vancouver, B. C. — John Oliver School destroyed. Arson.
Kitchener, Ont.—Three buildings and several others, some housing department stores and the supermarket destroyed or damaged.
London, Ont.—Hoffman Lumber & Supply Ltd. warehouse destroyed.
Sudbury, Ont. — Pressure-reducing station of Northern Ontario Natural Gas Co., Ltd., considerably damaged. Defective heating unit caused gas pipeline explosion.
Sherbrooke, Que.—Stable at Sherbrooke Exhibition Grounds damaged. □□

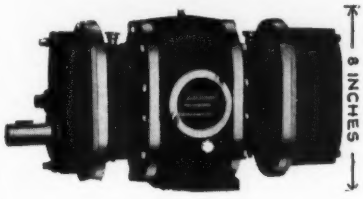
Chlorine Gas Fells 20

Fire under a swimming pool in the plush Bath Club, St. Petersburg, Fla., on November 30, cracked a 200-pound chlorine cylinder and 20 persons, including 10 Treasure Island firemen, were overcome by the escaping gas as they fought the stubborn blaze. Six of the fire fighters were hospitalized.

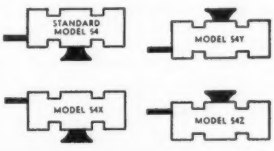
Norris T. Morton

CHIEFS WHO KNOW *always specify the*

LEONARD *Rotary Gear* **PUMP**



which can be mounted in 4 different positions and run in either direction.



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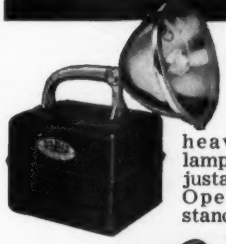
936 Statler Bldg., Boston 16, Mass.

The Fireman's Choice

Powerful Light
When he needs it—where he needs it
Big Beam
PORTABLE ELECTRIC HAND LAMPS



Model 700-A 2000-foot beam

Most powerful, heavy-duty hand lamp of its size. Adjustable 6-inch head. Operates on four standard No. 6 dry cells.

Model 211 1500-foot beam

Popular price, light weight, easy to carry. Adjustable 5-inch head. Holds two standard 6-volt lantern batteries. Operates on one; other is a spare.

Write for folder on complete information on these and other Big Beam dry-cell and storage-battery models.

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Rate $15 per column inch, less 10% for three or more consecutive insertions. Closing date for copy, 25th of month preceding date of issue. Address FIRE ENGINEERING, 466 Lexington Avenue, New York 17, N. Y.

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One 1946 Central 500 G.P.M. pumper complete with new engine in 1957, new pump in 1953 in A one shape. Ladders, Suction hose, fire axes, Pike pole, two booster reels with booster hose, adaptors and 400 gal. water tank. Contact Mayor Robert Newman—24 Forrest Drive—North Pekin, Illinois for Pictures and price. Truck can be seen at Fire station. (Also two speed rear axle.)

FOR SALE

Hahn 75 ft. tractor trailer aerial ladder truck, with 177 feet of ground ladders plus other extra equipment.

PHOENIX FIRE ENGINE CO. #2
POTTSVILLE, PENNA.

FOR SALE

One (1) 1941 Type 190 American LaFrance 65-ft. Aerial Ladder Truck with 100 GPM booster pump. 150 gallon water tank, 208 ft. of ground ladders and all standard equipment. Truck is now in service and in excellent condition.
Contact: John A. Marshall.

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Know more than others
Advance on the basis of what you know
Gain prestige through promotion
Do a better job

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FIREMANSHIP 1

New up to date basic manual of Firefighting methods. Understandable Illustrated Text. Send order and $1.25 to

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Yours for the asking. Send post card today requesting Folder F showing complete line of belt buckles with your name, initials, latest Fire Engines, Pumpers, Hook and Ladder, Rescue Wagons, Salvage Trucks and other Firemen enameled emblems which are also available on Tie clasps, Lapels, Money clips, Cuff Links, and Key Chains. Write:

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FIRE DEPARTMENT GREETING CARDS AND PARTY SUPPLIES

25 Assorted Birthday, Get Well and Sympathy Cards with Envelope $2.50.

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1955 Cadillac Superior $4750
1953 Cadillac Superior $2550
Both are straight ambulances with low mileage, and just completely overhauled. Fully equipped with Sterling #30 siren and Beacon on roof. Tunnel lights, spot lights, alternator, Washington cot and mattress, compartments, heaters, etc.

NATIONAL FIRE EXTINGUISHER CO.
255 Exchange Street
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WANTED

Used Firemens dress uniforms in good condition. Approximately 25 needed.

Chester Fire Dept. #1
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INVALID MARKERS

To "I"DENTIFY the homes of the AGED, BLIND, BEDRIDDEN and HANDICAPPED. Fire Officials—Ask for FREE SAMPLE KIT.

AUTO EMBLEMS FOR ALL FIREMEN

Identify yourself to others with this attractive firemens emblem. Easy to apply to any part of your car. Just press it on by hand—it stays on. Color-fluorescent red, black and white. Words "FIRE DEPARTMENT."

3 EMBLEMS for $1.00
Send for yours today.

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SALESMEN WANTED TO SELL UNDERWRITERS APPROVED COMMERCIAL OR HOME FIRE DETECTION EQUIPMENT.

Provide a needed service in your community with your own profitable business. Write today for details.

FIRE-LITE ALARMS, INC.
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FIRE DEPARTMENT SOUVENIRS, FAVORS, GIVE-AWAYS

Key chains with one-inch plastic fire hats or hydrants, assorted 4-inch plastic fire trucks, 7-inch red plastic fire hats. Quantity prices on request.

Only $1.20 per doz.
add 30c shipping

Order today from
ROBERTS CO., BOX 444E
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Write for free catalog.

FOR SALE

1937 Dodge Fire Truck
400 G. P. M. Front Mount Pump, 6 Yrs. Old
700 Gallon Tank
And Other Equipment. Now In Service.
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FIRE TRUCK BARGAINS

1960 Ford, Chevrolet, or International Class A Pumper with 500 GPM Pump and 500 gallon Tank built to Underwriters Class A Requirements, for only $7,000.00

NEED a siren or Red Light? Consult my low prices on TOP QUALITY USED SIRENS AND BEACON RAY LIGHTS. Trade-ins accepted.

Terms arranged if desired.

EDWIN R. JENNY
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Bridgeport Announces Consolidation Program

A long-range plan for tearing down 10 fire stations, construction of five new buildings in strategic locations and combining fire companies has been announced by Thomas J. Barrett, president of the board of fire commissioners, Bridgeport, Conn. The proposal ties in with a program suggested by Mayor Samuel J. Tedesco in his inaugural speech made following his reelection as mayor, which called for consolidation moves in both fire and police departments.

The plan calls for eventual elimination of two fire stations from the fire department's operations, with these companies consolidated into other houses. Commissioner Barrett has asked the National Board of Fire Underwriters to review the distribution of the city's fire stations with the aim of providing "more effective fire protection more economically." According to the commissioner, operation costs which the city would reduce by the consolidation move would offset expenses involved in erecting new moderate-cost fire stations to replace some of the existing outmoded buildings.

Another move to reduce operating costs in the Bridgeport department went into effect December 10, when 10 of 11 firemen assigned as drivers for Chief Sylvester E. Jennings and eight line assistant chiefs were assigned to other duties. The move will save the city an estimated $50,000, Commissioner Barrett said. Prior to the reassignment, there were three firemen assigned to Chief Jennings as drivers for day and night shifts. Under the change, Chief Jennings now has one driver for the daytime hours. On night calls he will drive the fire chief's car himself. Assistant fire chiefs no longer have drivers, and instead are operating fire department cars themselves.

Tom Magner

Fireman Loses Leg In Freak Accident

Fireman Charles Borm, Atlantic City, N. J., Fire Department, was seriously injured on October 27 when his left leg was crushed and torn off in a collision. The apparatus on which he was responding was rounding a corner when it collided with Engine 8 which had stopped at a hydrant near the intersection of Kentucky and Mediterranean Avenues.

MANUFACTURERS' NEWS

Continued from page 53

boxes, the use of the plastic globe is said to have cut replacement rate 50 to 75 per cent. The globes are molded by the A. L. Hyde Co., Grenloch, N. J., of Tenite supplied by Eastman Chemical Products, Inc., 260 Madison Avenue, New York 16, N. Y.

Waconia, Minn., Gets New FWD Pumper

The FWD Corp., Clintonville, Wis., recently delivered this rear-wheel-drive pumper to the Waconia, Minn., Fire Department. The Model F2-1028 unit mounts a 1,000-gpm Waterous electromatic pump and is equipped with a 500-gallon booster tank, a 100-amp. Leece-Neville alternator and a synchromesh transmission.

New Homelite Plant

Homelite, a division of Textron, Inc., Port Chester, N. Y., recently dedicated its new plant in Greer, S. C. Built by Daniel Construction Company of Greenville, it is a one-story building, except for a brief second floor housing an attractive cafeteria, and covers 150,000 square feet.

The well-planned, open interior makes use of "straight line" manufacturing techniques coupled with the latest automatic machinery, resulting in an extremely efficient and productive plant which will eventually employ 400 to 500 people.

Publications Available

Kohler Co., Kohler, Wis., has published a new 12-page folder, E-344, illustrating its complete line of standard electric plants for stand-by or sole supply which are available in sizes ranging from 500 watts up to 100,000 watts.

Columbia Acoustics and Fireproofing Company, Stanhope, N. J., has published a four-page technical bulletin on its Cafco Heat-Shield thermal insulation for metal and masonry buildings and industrial equipment. The technical data includes typical coefficients of heat transmission for walls and roofs of various types of construction. Ask for I-10.

Walter Kidde & Co., Inc., 675 Main Street, Belleville, N. J., has published a four-page illustrated brochure on the subject of fire safety for commercial kitchen ranges, deep fat friers, hoods and ducts. It features automatic carbon dioxide fire extinguishing systems and points out that carbon dioxide leaves no residue and does not affect food or equipment it may contact. Ask for I-26.

The Deming Company, Salem, Ohio, manufacturer of power pumps and water systems, has prepared a 10-page booklet "Presenting a Great Performer," which explains the company's new thermosetting plastic called "Fianite" used to make pump parts. Comparative strength and physical properties of the materials are shown.

Mine Safety Appliances Co., 201 North Braddock Avenue, Pittsburgh 8, Pa., has issued Bulletin No. 0911-1 describing its line of Porta-Power hydraulic rescue equipment. Operating principles are described and a wide variety of applications are illustrated. A separate insert, parts list No. 0911-2, accompanies the bulletin.

S. K. Wellman Co., 200 Egbert Road, Bedford, Ohio, has published a new 32-page catalog of its Velvetouch and Velvetouch Feramic replacement clutch plates, clutch facings and brake linings for fire apparatus and other heavy duty vehicles. Ask for 60-A.

Ansul Chemical Co., Marinette, Wis. has issued its new 1960 catalog of portable extinguishers, stationary fire equipment, piped systems and large capacity mobile equipment.

Stonco Electric Products Co., 333 Monroe Avenue, Kenilworth, N. J., has published Bulletin P-110 which describes its new line of "Power-Beam" portable floodlights. The cast aluminum units are UL and CSA approved for outdoor service.

Motrac Power Voice

Motorola has introduced a 15-watt speaker for use with its Motrac two-way radio line. Fully transistorized, the new "Power Voice" speaker is said to triple normal speaker audio output enabling user to hear radio messages hundreds of feet from the vehicles. The new speaker is equipped with an 8-foot coil cord and special mounting brackets for temporary mounting on the outside of the vehicle window.

RCA Compact Mobile Unit

A new transistorized mobile radio unit LD-150, has been announced by the Radio Corporation of America, 30 Rockefeller Plaza, New York 20, N. Y. It is said to feature a completely transistorized power supply, the use of transistors in critical receiver circuits and a stand-by monitoring system which appreciably reduces battery drain. Available in 30-watt or 60-watt models, it may be operated on any frequency in the 148-174 megacycle band. □□

MINIATURE RADIATION WATCHDOG FOR FIRE FIGHTERS

In fires where radioactivity is encountered, FIDO* sounds a clearly audible alarm — unmistakably warning the fire fighter of the presence of hazardous gamma radiation.

FIDO is the size of a cigarette pack, extremely rugged, and easy to operate.

Carried in the pocket, or attached to the turnout coat, FIDO provides vital personal protection.

Controls for Radiation, Inc. offers the following radiation hazards protection services to the Fire Service:

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NEW IMPROVED

No. B-800-SOS

PATENT PENDING

Exclusive *Dial-A-Tip* feature gives a variable straight stream equivalent to straight tips from 7/8" to 1 1/8".

- First hand line combination fog nozzle that will give a full Underwriters' stream (250 G.P.M. at 100 p.s.i.) in a straight stream position. Furthermore, this nozzle will produce a straight stream as small as that of a booster nozzle.
- Rated at 275 G.P.M. at 30° fog, 100 p.s.i. Also has 60° and 90° fog positions.
- Base of playpipe available in solid or swivel construction. Shut-off handle and stream indicator always on top.
- Scientifically balanced with bulk of weight forward — counterbalances weight of hose for easier handling.
- Lightweight—entire unit weighs only 15¼ lbs. Ball type shut-off is an integral part of playpipe and is so designed that straight tips may be used if desired, or a 1½" line may be attached directly to the end of shut-off.

ELKHART BRASS MFG. CO., Inc

ELKHART, INDIANA

More than half a century of fire fighting progress

ADVERTISING INDEX

FIRE ENGINEERING

JANUARY, 1960

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